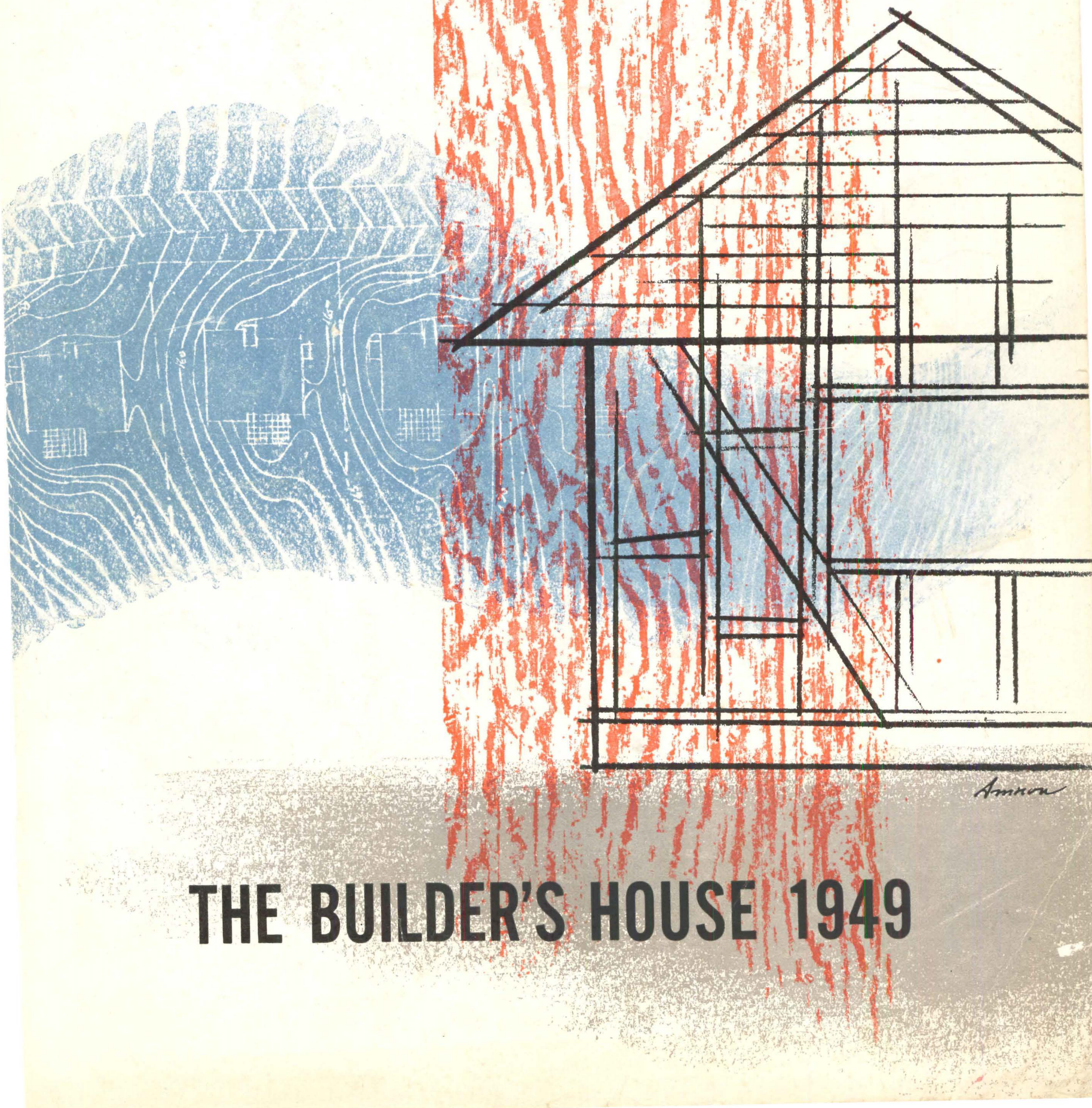
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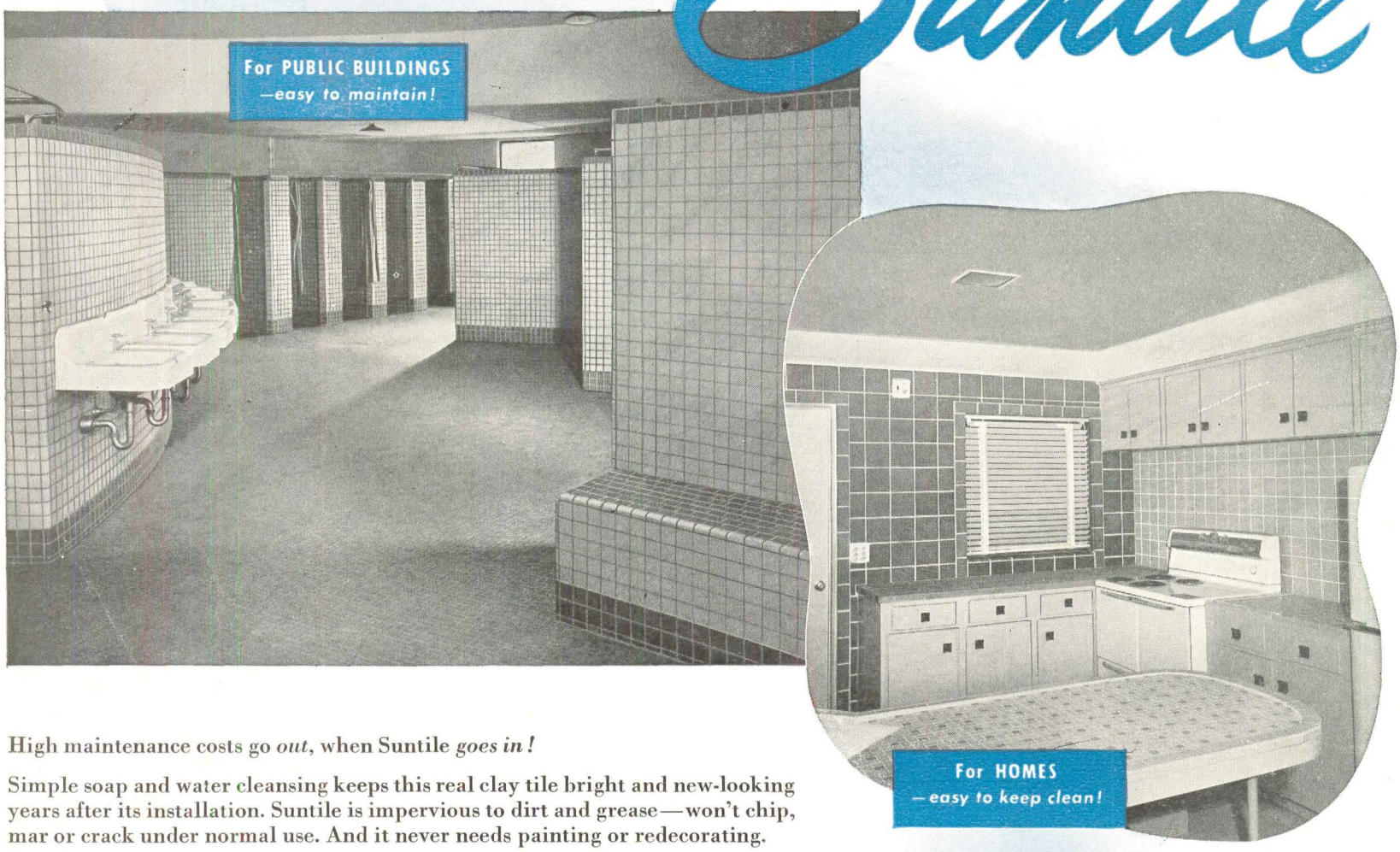
MAGAZINE OF BUILDING



THE BUILDER'S HOUSE 1949

So light on the upkeep budget for public building or home!

color-balanced Suntile



High maintenance costs go *out*, when Suntile *goes in!*

Simple soap and water cleansing keeps this real clay tile bright and new-looking years after its installation. Suntile is impervious to dirt and grease—won't chip, mar or crack under normal use. And it never needs painting or redecorating.

Low upkeep cost is *one* good reason so many architects choose Suntile for industry and for home.

Another obvious reason is Suntile's *built-in* beauty and quality—and Suntile's color-balance which permits such freedom in selecting harmonious blends.

Still another reason is *better* installation. Authorized Suntile Dealers, carefully selected and trained, see to it that every Suntile installation reflects the excellence of the product they represent.

Let us send you the name of an Authorized Suntile Dealer. He can show you real clay Suntile in 23 wall colors. In addition, he can show you impervious unglazed ceramic mosaic Suntile in 20 colors—and Suntile Camargos in 10 colors—both in modular sizes.

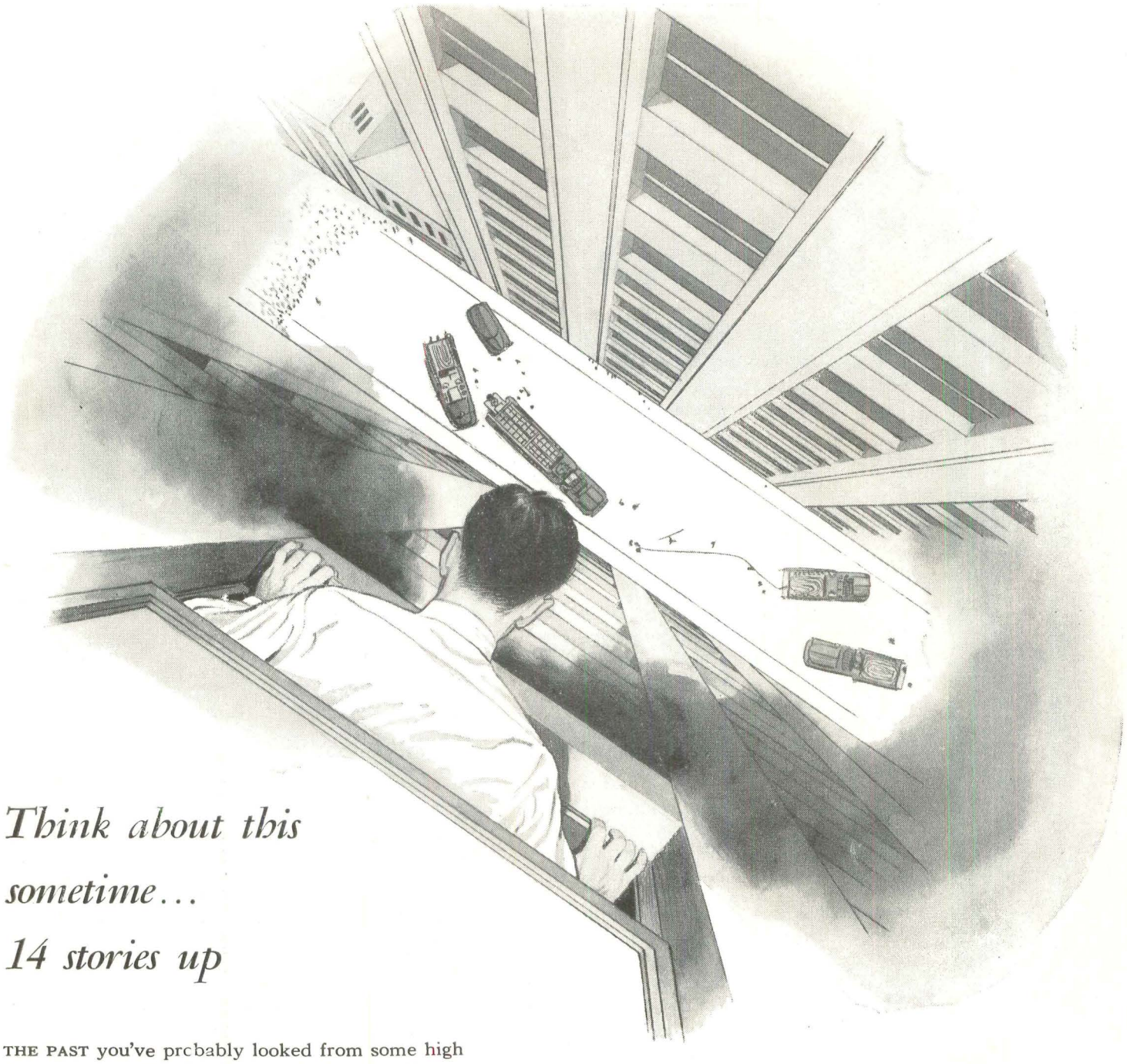
See Sweet's Catalog for more complete information. The Cambridge Tile Manufacturing Company, Cincinnati 15, Ohio.

Color Balanced

Suntile

Bright with color Right for life

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YES, IT CAN HAPPEN TO YOU, or anyone, for as long as people are human and careless, there is no way to prevent such fires from *starting* . . .

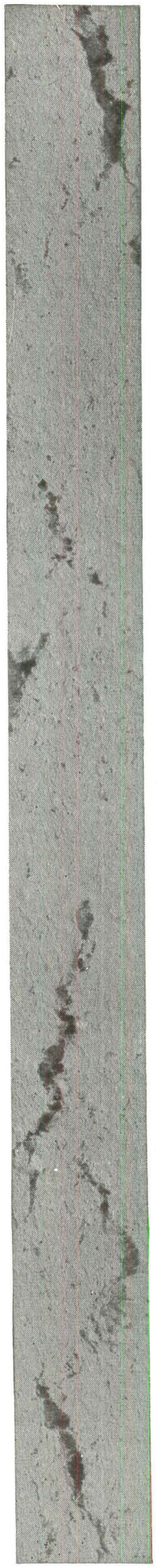
But such fires can be *controlled.* Needless destruction and loss of life can be *prevented* by checking fire at the source, when it starts, with Grinnell Automatic Sprinkler Systems. Seventy years experience show that close to 100% of fires starting in buildings protected by Grinnell Sprinkler Systems are extinguished before doing material damage.

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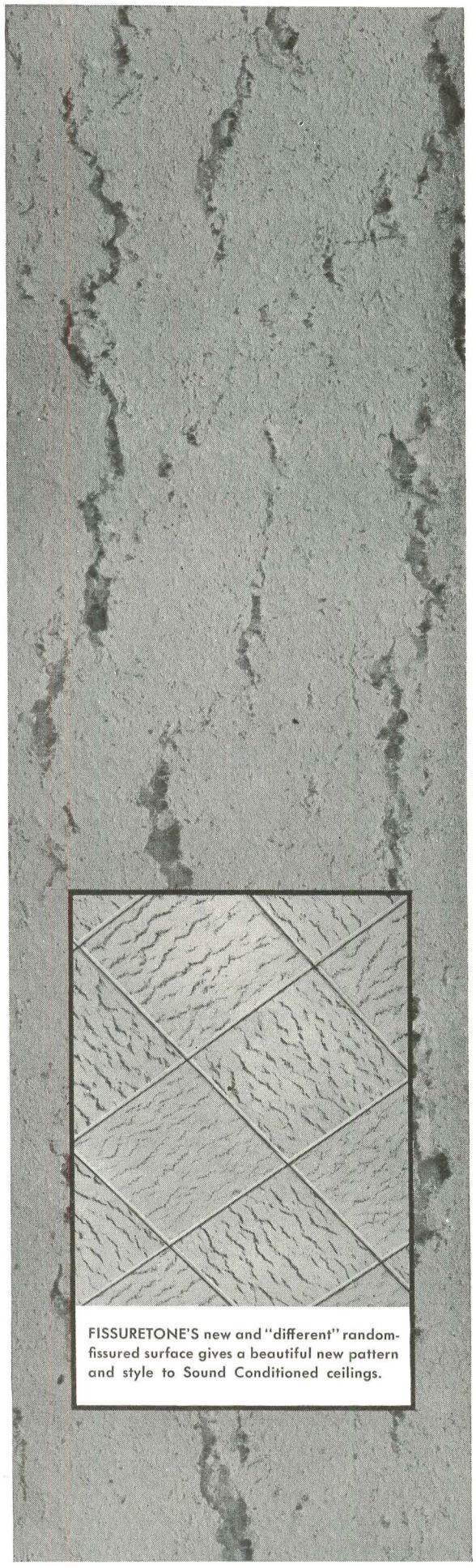
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ARCHITECTURAL **forum**

MAGAZINE OF BUILDING

APRIL 1949

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VOLUME 90, NUMBER 4
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NEWS 9
A.I.A.'s March convention, Saarinens' proposed civic center for Detroit, Houston's lush Shamrock Hotel.

LETTERS 24

PREVIEWS 58
An advance report on some up-coming buildings.

FORUM 74

THE BUILDER'S HOUSE 1949 81

BUILDERS BY SIZE: A detailed comparison of three builders' approach to the suburban New York City housing market. 83

4,000 HOUSES by Levitt & Sons, Inc. 84

200 HOUSES by Frank Homes, Inc. 94

25 HOUSES by Suburban Properties, Inc. 97

PORTFOLIO OF BUILDER DETAILS: A quick look at the most interesting aspects of 33 builders' current work.

SITE PLANNING 102

PLAN AND DESIGN 104

CONSTRUCTION 112

SELLING 114

MERCHANT BUILDER SURVEY: A FORUM poll of the industry on the economic trends which are shaping it. 115

BUILDER DEVELOPMENTS: A detailed analysis of nine of the most significant merchant builder operations and their 1949 houses.

1. KAISER HOMES, Los Angeles, Calif. 118
2. CARL M. FREEMAN, INC., Tacoma Park, Md. 122
3. ZAMORE BUILDS, INC., Waldwick, N. J. 124
4. ADVANCE DEVELOPMENT CO., Los Angeles, Calif. 126
5. GERHOLZ COMMUNITY HOMES INC., Flint, Mich. 128
6. WILLIS FOSTER, El Cerrito, Calif. 130
7. PENNURBAN HOUSING CORP., New York City 133
8. DAVID D. BOHANNON ORGANIZATION, San Francisco, Calif. 136
9. DEL E. WEBB CONSTRUCTION CO., Tucson, Ariz. 140

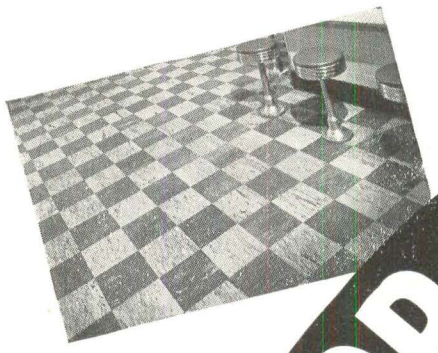
WHY SOME BUILDERS FAIL: A close accounting of the $8½ million bust at Harundale, Md., which taught the Byrne Organization a lesson in speculative building. 143

DEMONSTRATION IN COST REDUCTION: A presentation of the University of Illinois' experiments with the Industry Engineered House. 146

BUILDING REPORTER 166
Convector coil system for radiant panel ceilings.

REVIEWS 206
Prize-winning solutions to three floor design problems.

TECHNICAL LITERATURE 240



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LARRY GILMAN



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L.G.

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☐ Cellulite Cotton Insulation
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This building would

examples of changes made during construction at low cost

DUST COLLECTING SYSTEM —its exact location was not determined until after the building was well along.

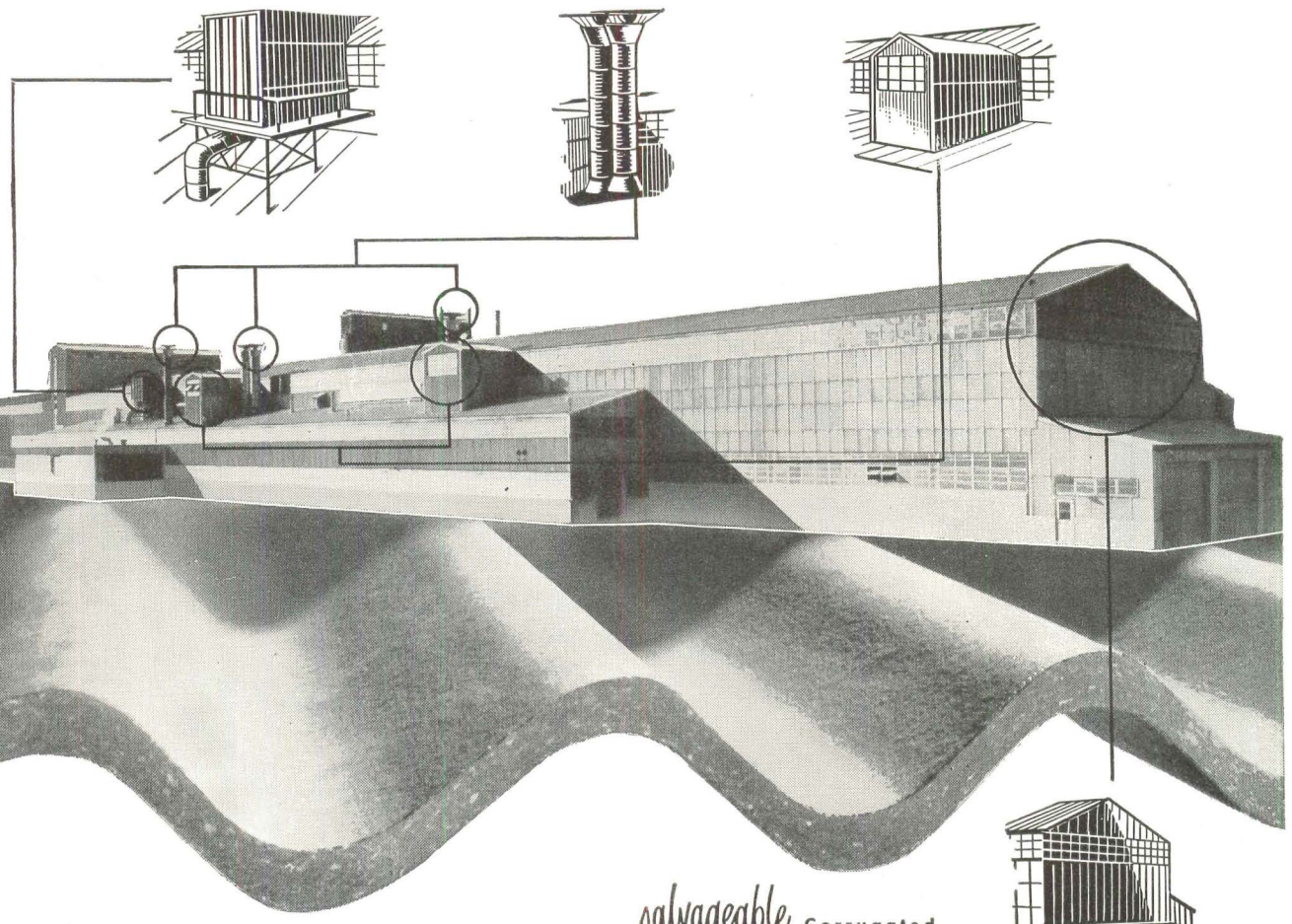
Due to the flexibility of Corrugated Careystone, even major changes and additions were made quickly and with relative ease and economy.

STACKS — to take off exhaust from paint and ceramic coating spray booths.

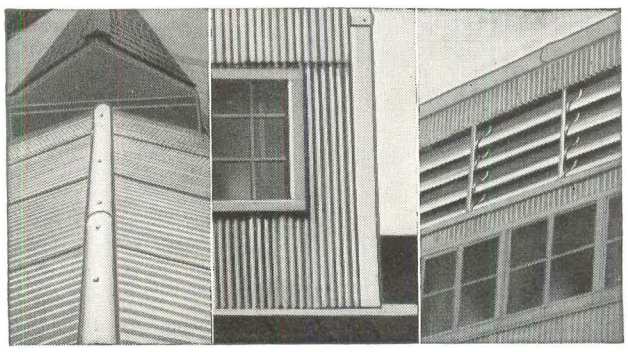
Careystone's resistance to fumes and heat made these additions practical and economical. No special protective materials were necessary.

PENTHOUSES—to house vertical conveyors at temperatures up to 150° F.

New wall openings made after walls were in place . . . with a minimum of time and expense. All Corrugated Careystone was reused in the new plan.



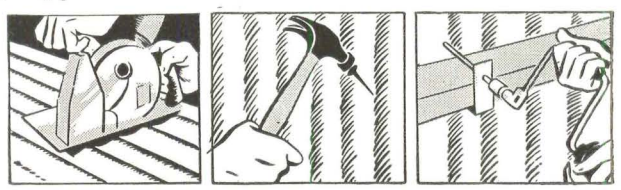
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salvageable Corrugated Careystone is durable, strong, inorganic, fire-resistant, easy-to-handle and apply. Its modern design fits it for modern interiors and modern exteriors—for a new kind of modern construction.

END WALL—designed for future expansion. Wall can be dismantled and Corrugated Careystone reused if building is extended to gain more floor space.

easy application



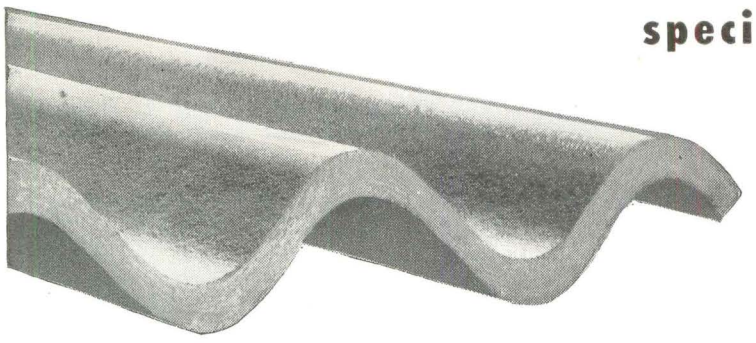
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cost you 40% less, too, with Careystone

We built this plant with our own products . . . to make more products to build more plants! We estimate we saved as much as 40% over conventional masonry construction by using Careystone Corrugated Asbestos-Cement Sheets. This should be real news for you—especially if you are making plans for a new building or changes in present ones. We needed to get a new plant into operation quickly. We did it by building it with Corrugated Careystone.

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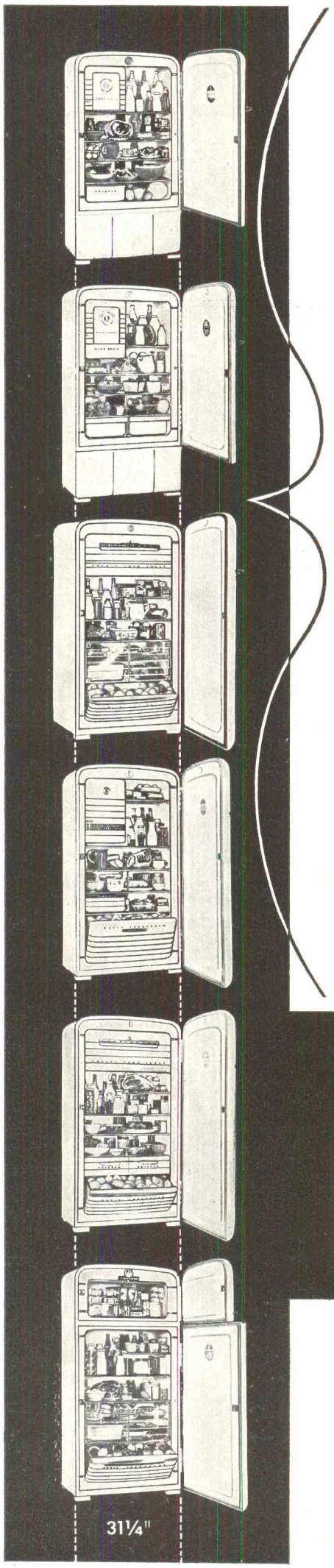
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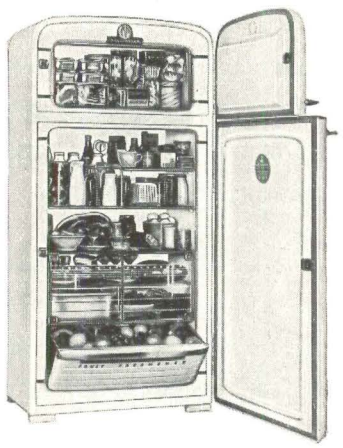
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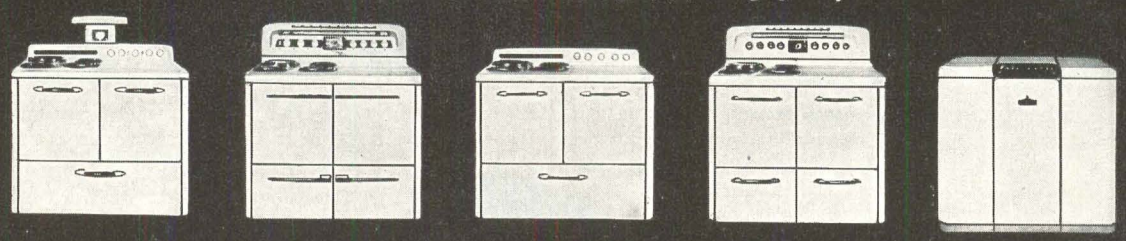
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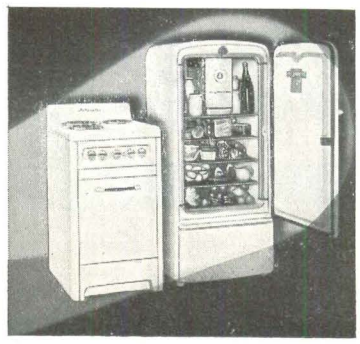
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NEWS

WASHINGTON

Congress extends weakened rent control p. 9

HOUSES

New research board is formed to coordinate housing study p. 10

MATERIAL

Model code attracts interest but has far to go p. 10

BUILDING MONEY

Mortgage Bankers say there will be plenty of money p. 12

JOBS

Contractors think public jobs will offset decline in private construction p. 14

Houston's new Shamrock Hotel blossoms p. 11

New Jersey apartment development will house 1,035 p. 14

ARCHITECTS MEET

A.I.A. convention elects Walker president, gives Wright gold medal p. 16

BUILDING MONTH. Across the broad sweep of the land, the nation tensed in anticipation of spring. It had been a rough winter, and although it was not quite over yet, the midwest was beginning to thaw out of its most cramping freeze in a dozen years; the muddy, thunderous waters of the Mississippi were beginning to swell; and housebuilders were waiting only for the chill to leave the earth before they poured the foundations of this year's work.

If the U. S. was more apprehensive about spring's approach than it had been in a decade, it was only because the winter (which had not only brought physical destruction, but had also witnessed a wind shift to sales resistance) had effected important changes in the nation's economy—and the nation was half afraid to see them nakedly revealed.

Washington, which had been uncertain all year whether it was still fighting inflation or had a good case of deflation on its hands, finally decided it was just a little "disinflation," and it went to work pumping the pressure; the Federal Reserve Board eased controls on installment credits —down payments on appliances and furniture dipped from 20 to 15 per cent, and the payment period itself, even on automobiles, was stretched to 21 months.

New kind of spring

It was sure to be a new kind of spring for the housebuilder, who had uneasily watched his $10,000 houses wear "for sale" tags too long for his comfort, and his bulldozers idled by both the market's uncertainty and the winter's severity. (BLS said February's 46,000 house starts were 4,000 below January's and 3,600 less than February of 1948.) Pushing through the winter's scars with the same natural intensity of the first cherry blossoms around the tidal basin in the nation's capital was the character of the builder's new market: the demand for low cost housing. The phrase "Economy Housing," coined by the industry and blessed by the government, had fired new hope into the potential home buyers of the nation, particularly the enormous and scarcely-tapped group earning $50 a week.

FORUM discovered that the merchant housebuilder, hearing the call of the new demand, would go all out this spring to build a cheaper and better house (see page 115). He would have some headaches, however, before he got his cheaper house built, and one of them (another sure sign of spring) was right upon him: in Cleveland, where construction union contracts had expired March 1, workers were negotiating for new contracts—with increases. Elsewhere, despite warning flurries of unemployment (18,000 building tradesmen were idle in Los Angeles; New Orleans laborers had had their work week clipped to as little as three days), contracts were either ending or about to end, and the story was the same: building unions were negotiating a 10 per cent increase on the west coast, a hike of 25 cents an hour in Denver and St. Louis.

New kind of help

But the builder would also have substantial help. There was, for instance, very good news in cost reduction. Lumber's spectacular downward trend was still the biggest news. One big builder in the Southwest said his lumber costs were down 42 per cent — mostly since October. Even conservative government estimates put the average wholesale price of lumber 6 per cent below its high of last August. (Scattered reports of a tightening in Southern Pine and a couple other grades pointed up the possibility that lumber might now level off rather than continue its decline, however.) The next significant price break might well be in steel, which had kept its furnaces at fever pitch to keep abreast of demand and shame the President's January suggestion that the government build its own steel plants. Even equipment, whose reductions always follow by a substantial margin those in basic materials, made its dramatic contribution to the month's price story: American Radiator-Standard Sanitary Corp. announced an across-the-board price cut ranging from 5 per cent on hot water boilers to as much as 20 per cent on warm air furnace equipment. Libbey-Owens-Ford Glass Co. cut Thermopane prices 5 per cent. And Armstrong Cork reduced corkboard 10 to 15 per cent.

If the first signs of spring were accurate, the year would be good to the middle income American who was as yet unhoused. He might yet be able to satisfy his pent-up longing for that relic of prewar America which postwar America had put out of reach: a livable house within his means to purchase.

WASHINGTON

RENT CONTROL EXTENDED

Congress decentralizes decontrol to states and cities

Snapping once again at the "vicious housing lobby," Harry S. Truman said: "Basically, the Congress and the President are working together." The harmony apparent to Mr. Truman was not so obvious to others.

As soon as Majority Leader Scott Lucas wearily conceded the Administration's defeat on civil rights, the Senate started whittling away on its rent control bill. It was dragged out on the Senate floor from the Banking Committee room where it had been weakened (but not too much), to be weakened still more. When the full Congress was through with it, Rent Control's extension had been shortened to 15 months instead of the two years the Administration requested, and municipalities were given the power to decontrol their areas as they wished.

The new rent control law contains its predecessor's veterans' preference regulation.

Because rent control was still a politically hot issue, the victorious Republican-Southern Democrat coalition was not prepared to junk it completely, despite Republican Harry Cain's contention that the bill was "driving rental accommodations out of the market," and despite the plight of landlords who must rely solely on the rents they take in. (They have risen only 20 per cent since 1939, whereas the cost of living has risen 70 per cent.*) The Senate spent most of its four debating days arguing the "local option" amendment, sponsored by Arkansas' J. William Fulbright. The resulting compromise—local option, subject to veto at the state level—would not make much difference. Little was likely to happen to rent control before its new 1950 expiration date. Mayors and governors were as conscious as Congressmen of one great political fact-of-life: there are still more voters in the U. S. who are tenants than landlords.

* * *

The Congress also:

▸ Delayed at least until April its consideration of public housing, because of the log-jam of pressing legislation created by the filibuster.

▸ Extended for 90 days FHA's Title VI, which since its revival last summer applies only to rental housing. (The Administration's proposed "aid to private enterprise" bill provides for extension of Title VI for another year.)

▸ Authorized $4,800,000 to tide FHA over the remainder of the fiscal year; $5,400,000 to renovate the White House; $2,274,000 to repair the House and Senate chambers.

HOUSES

WATCHDOG

New research board will coordinate all housing study

Research into such vital components of a house as its heating unit, its thermal and acoustical insulation, exhaustively conducted in academic and independent laboratories over the last ten years, has gone a long way toward shaping a liveable, comfortable house. But the research done, for the most part, has been scattered, in many cases overlapping, and not all sections of the industry have known of the studies other factions were making. How good a house (and how cheap a house—a matter scarcely touched) research could produce if it were all tied together and coordinated in one central drive is more than an academic question. It is, in fact, the compelling question behind the formation last month of a new agency—The Building Research Advisory Board.

Effective answer

Industry and government groups both have been long aware of the need for a research clearing house. Each asked the National Academy of Sciences (an organization formed in 1863 to advise the government as to fields of research in need of exploring) to undertake the job. (The Housing & Home Finance Agency placed its request last fall; the Chamber of Commerce's Construction Industry Advisory Council asked it some time before.) BRAB, which will be administered by the National Research Council (through which the National Academy of Sciences also operates) was the result. It also served as an effective industry answer to the government's request for congressional authority to do housing research itself.

BRAB will not actually conduct research. It will simply coordinate the research done by all the research agencies already in existence—a tremendous and important task. Just how important it is was effectively noted by Dr. C. F. Rassweiller, vice president for research and development of Johns-Manville Corp. and one of the guiding forces of BRAB, who believes research is more important in housing than in other, already heavily-researched industrial fields. Great gaps in housing study exist, says Rassweiller, because no single building producer is interested in more than 10 per cent of a house. Other reasons, reflecting the unique character of the building field: the varied concept of a house throughout the country; the time lag between the development of new trends and changes in housing (Dr. Rassweiller thinks the lag is about ten years, as compared with five years for automobiles); the emotional attitude of a man toward his house.



RASSWEILLER

Already rolling

Meeting for the first time last month in Washington, BRAB's new 27-member board decided there were two matters which it must get at first—selection of permanent director and staff, and solicitation from all industry groups of an operating fund of $100,000 to carry it through the first year. (BRAB figures it will need $100,000 each year. It prefers to get its financing from every section of the industry, rather than just a few of the largest groups.) It also gave an indication of how useful it can become to the industry: it started things rolling by accepting an HHFA request to find out why modular coordination has not found wider practical use in home construction.

If Congress empowers the government to conduct a housing research program, as the proposed public housing legislation requests, BRAB should by then be a full grown and already-trained watchdog, capable of seeing to it that all such research benefits the building industry and the nation as a whole.

* For the building industry, rent control poses one other big problem: how to get good building customers into the building market. Many high income families (17 per cent of those earning more than $5,000 a year, according to *The Appraisal Journal*) live in rented space; they are not likely to buy or build their own houses as long as they are protected by rent control.

MATERIAL

BUILDING CODES

BOCA model code stirs civic interest and producers' objection

Last month, Future Springfield, Inc., a privately-financed fact finding group of Springfield, Mass., business men (FORUM, Nov., '48), went to press with an 85-page evaluation of Springfield's building code, with recommendations for specific changes. FSI had spent more than $4,000 and nine months on its study, had hired a professional consultant to iron it out. FSI looked for early action by Springfield's code revision committee.

Springfield was perhaps an extreme example of the determination of U. S. cities to remove themselves from obsolete and restrictive codes which add substantially to building costs. A clearer picture could be found in the fact that by last month a great many cities had shown a real interest in the three-month-old building code proposed by the Building Officials Conference of America.

Two working

BOCA (which, as its name implies, is composed of the men who draft and enforce the building codes in many cities) has two codes working: a basic building code, which it began four years ago, and which will be finished in two or three months; and a stripped-down version (the Abridged Building Code) for smaller communities, which it worked up last year at the request of the National Association of Home Builders. It published this code in December, has already distributed it to 700 cities and towns. Albert H. Baum, BOCA president, describes the basic code as a "functional-type code, which permits the introduction of any material meeting certain requirements of performance. It does not specify a material, or a thickness, but says that a wall must pass a one, two or three hour fire test, depending on where it is to be used."

Under BOCA's plan, a city deciding to use the code would receive the technical services necessary to get the code in operation from a BOCA affiliate, the Building Officials Foundation. BOF would have a new material unfamiliar to local officials tested by an independent laboratory, would certify whether the material met the func-

(Continued on page 12)

NEW HOTEL

A Shamrock grows in Texas

Everyone said the new hotel was going to do a lot for Houston. Despite its great wealth the big industrial city of the Southwest had long lacked a really lavish standard of public living, dining and entertainment. When the new Shamrock blossomed into exuberant operation during the week of the A.I.A. convention in Houston, the town got that standard, with green architectural frosting.

Located four miles from the business center of Houston, the Shamrock is a superlatively staffed 1,100-room, 18-story reinforced concrete frame with a separate five-story garage and a 165 ft. long swimming pool. The most important element is its complete air-conditioning system, with a unit under every window to allow individual humidity and temperature control in each room; among other features are a first floor night club room 103 ft. square, clear-spanned by trusses, an estimated cost per room in excess of $18,000, and the owner, millionaire Glenn McCarthy. (When McCarthy, a fabulously successful independent oilman, drilled two wells down very deep under the foundations of the Shamrock for good water, it was predicted wryly by his rivals that he would strike a pool of high octane gas.)

The hotel was opened on St. Patrick's day with ceremonies since compared to the Kansas land rush, but the architects at the convention had had a preview of it the night before, when the A.I.A. President's reception was held there. Their reaction was conversationally violent. The Shamrock caused more talk at the convention than the election of the new officers. Its design even penetrated Frank Lloyd Wright's response to the presentation of the gold medal of the Institute: "We have got the kind of buildings we deserve."

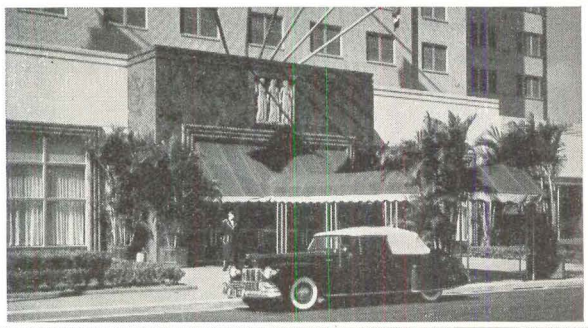
Style of the $21,000,000 building is described by the management as "Modern Romanesque . . . which combines strength with dignity but avoids stodginess." Appraisal by the architect, Wyatt Hedrick of Houston (not a member of the local A.I.A. chapter), is: "A building of pleasing line, sufficiently modern. Yes, a very pleasant building."

Interiors, and uniforms of the staff were designed by Robert Harrell and are called "International Modern." Says Harrell, "International Modern combines the best design from every country and culture with the clean simplicity of the modern trend to produce a theme that will never be dated." Throughout the hotel are "evidences of Grecian, Regency, and Empire influence blended with designs of modern trend from Italy, France, China and England . . . all fused into a new refreshing theme." Typical of the professional criticism was the remark of one visiting architect: "I always wondered what the inside of a juke box looked like. Now I know."



Photos: Bob Bailey

New hotel, 18 stories high, rises in lonely splendor in area of low buildings far from center of town.



Three Graces are carved over main entrance; lobby, below, is called "International Modern" in design.





Double room has convertible sofa beds; a unit air conditioner is located under each of the windows.

Maynard Parker

tional standards for which it was intended. BOF's cost will be sustained by the industry. Baum admits that BOCA's hardest job will be "providing the code's servicing and making it easy to carry out." But he believes that as the idea grows, and more industry groups fall in with it, the job will be simpler.

Objection sustained

Chief hitch in BOCA's plan so far has been the reluctance of the Producers' Council and some building materials producers to go along with it; their main objection is that the Foundation's board of governors should be more representative of the building industry than it is at present, should include architects, engineers, builders and greater public representation, as well as building officials, general contractors and producers. BOCA has suggested it is ready to meet this objection. Says Baum: "I don't believe the board of governors would object to diversifying the composition of its membership. The mechanics of setting up the code didn't permit this, but we would be willing to go along now. Eventually we would like to have the A.I.A. and the American Society of Professional Engineers, the National Fire Protection Association and other groups represented. We would not object to including home builders."

BOCA is confident of its ultimate success. Baum's prediction: within five years "most cities will operate under it . . . and where they don't adopt this code, they will still use it for reference."

BUILDING MONEY

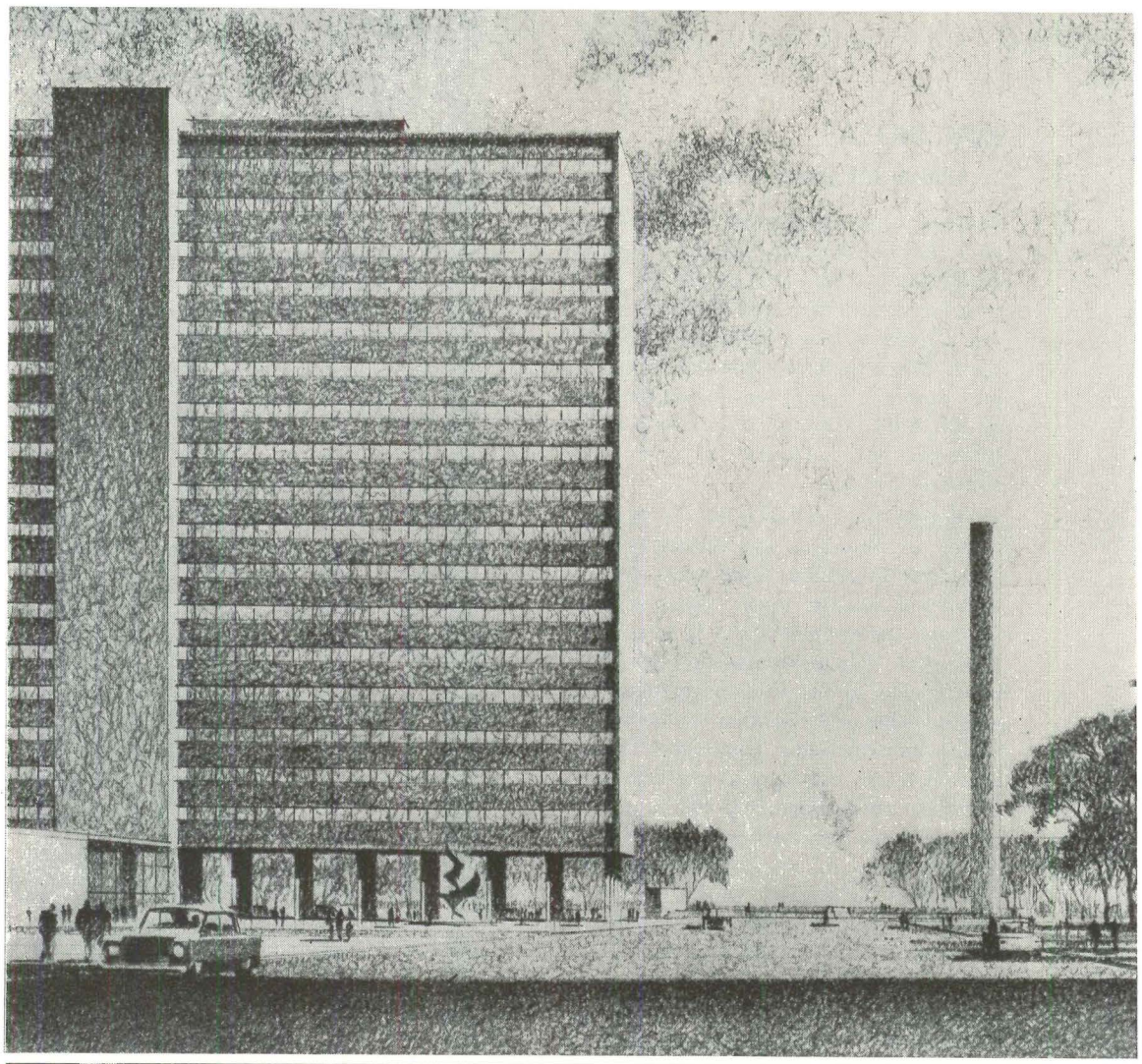
FINANCING APLENTY

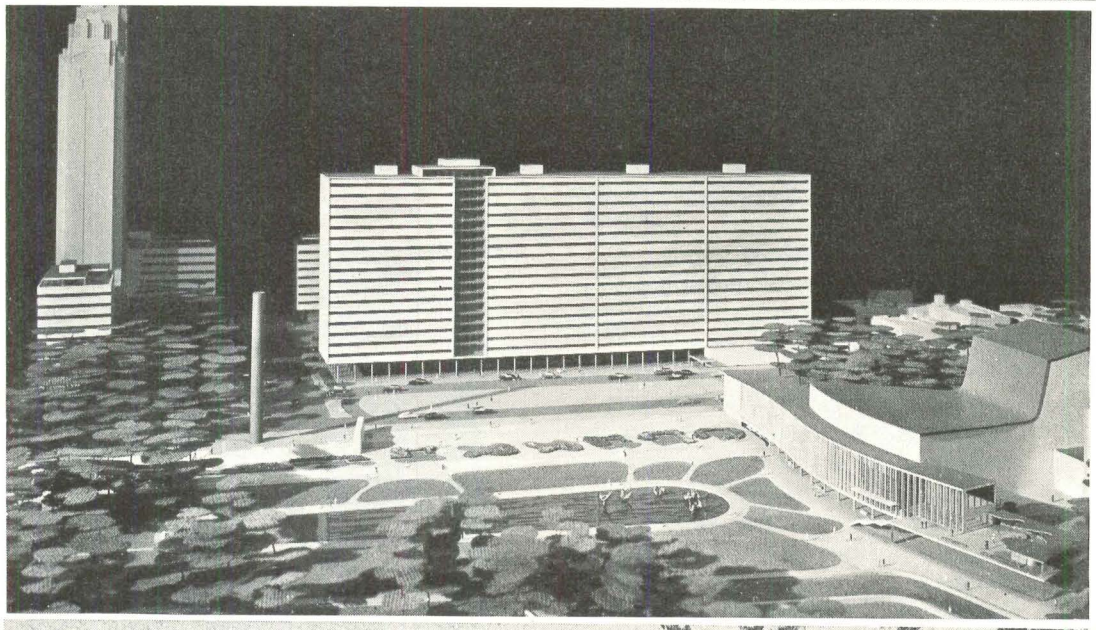
Mortgage Bankers foresee an ample supply of money

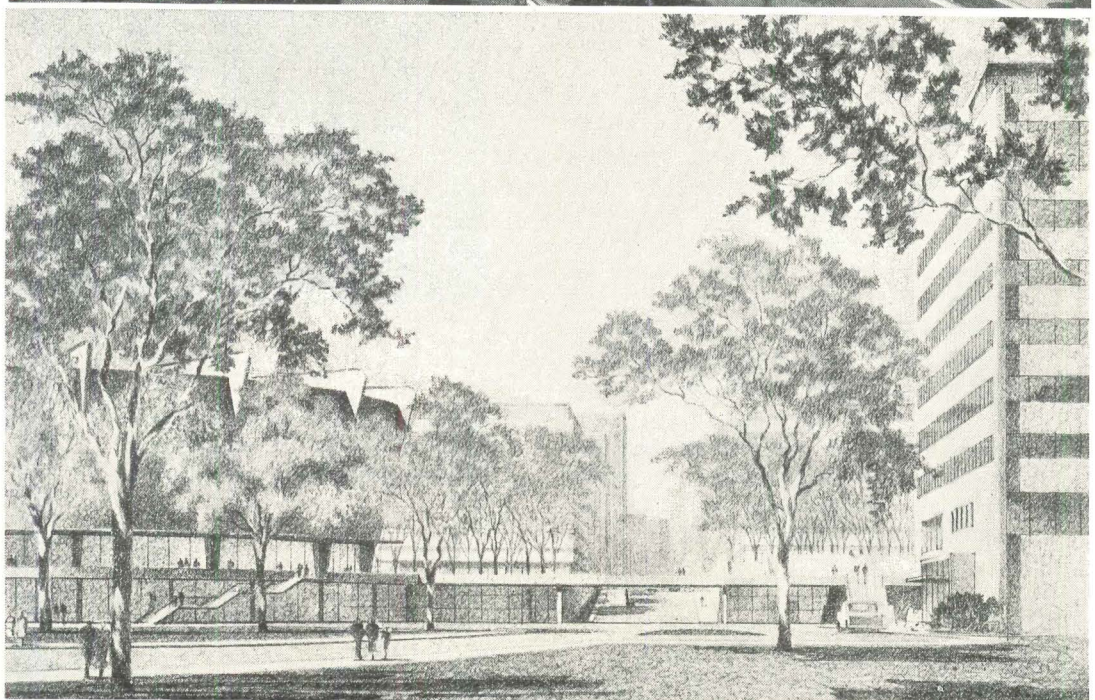
Builders, apprehensive about their prospects of getting enough financing to underwrite their next construction year, got a word of encouragement last month from the men who should know—the mortgage bankers. Members of the Mortgage Bankers Association met in Chicago to pool their forecasts, and came up with this heartening prediction: there will be plenty of mortgage money in 1949, and at no increase in the current rate.

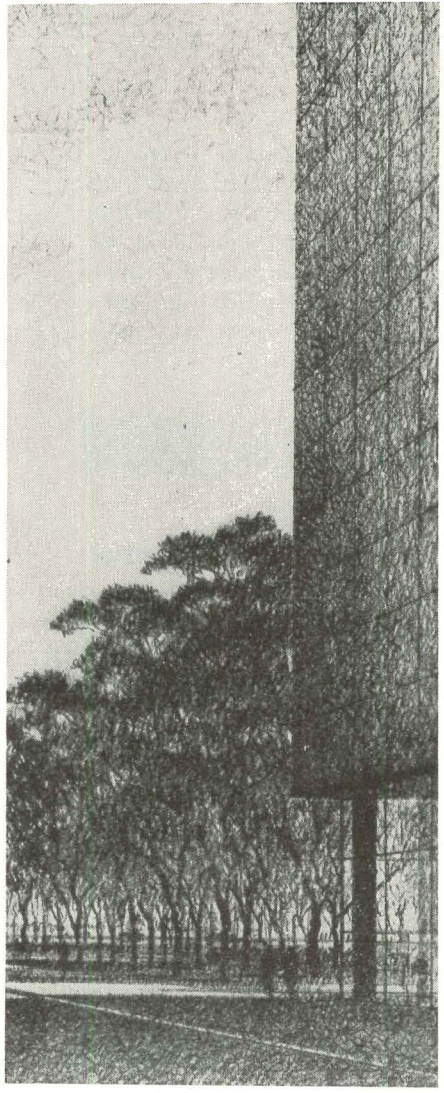
Convention Chairman Edgar N. Greenbaum, of Chicago, packaged the good news. Said he: "Many of the large institutional investors cut down on their mortgage lending in the fall of 1947. These institutions spent most of 1948 digesting what they had previously bitten off, and weren't very hungry for new mortgages all of last year. Now, however, economic factors have brought about a change. Large sums of money are accumulating and must be in-

(Continued on page 14)









$50 MILLION CIVIC CENTER is created by the Saarinens for Detroit

For 25 years Detroit has played with the idea of building a great, beautiful civic center. It has had an ideal site earmarked, a stretch of 43 acres along the Detroit River. From time to time it invited architects to submit suggestions, but in the accelerating tempo of the country's leading center of automobile manufacturing, the plan seldom got beyond the thinking stage. When the city planning commission took up the idea again two years ago, it asked Eliel Saarinen (who had done two previous schemes in 1923 and 1937) and his son Eero to act as consultants. The Saarinens' master plan for a $50 million center was shown for the first time last month. Already approved by the Planning Commission, it is now before the Detroit Common Council for approval and the necessary appropriations.

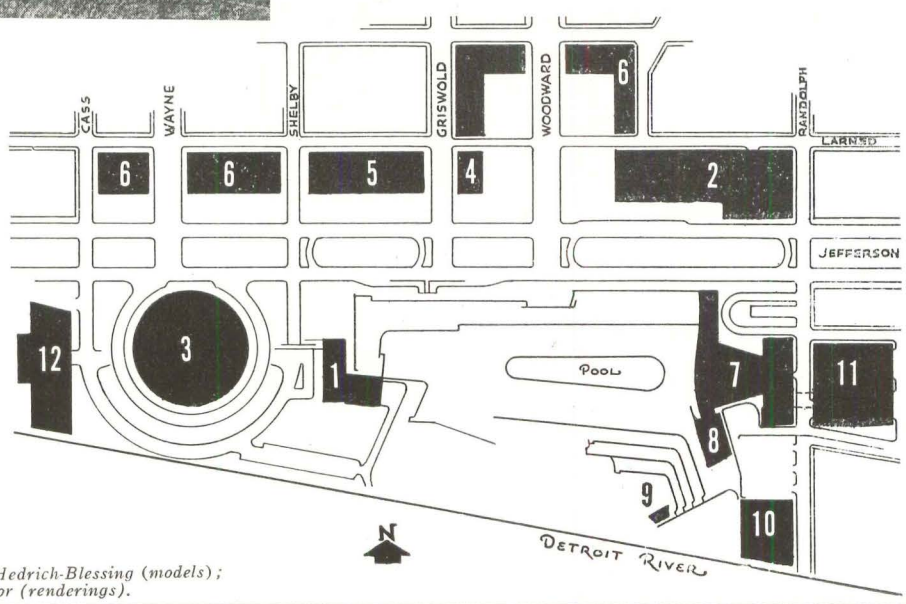
The Saarinen model, which gets away from the old axial planning concept, groups eight public buildings and several other structures around a central plaza. The architects wanted to depart from the "prototype of the civic square" which "tends to be a paved formal square of which at least 50 per cent of the space is given up to the automobile." Said the Saarinens in their report to the Commission: "We have thought of this square more as a garden or cottage green."

The plan includes a $12 million building which would house all administrative functions of the city and county government; a $9 million, circular convention hall, seating 17,500 persons; four government buildings for state, federal and local functions; an auditorium and music hall to seat 3,500, and one building which is already under construction: a $3,687,000 Veterans Memorial Building by Architects Harley, Ellington & Day. (It was started before the Saarinens became consultants.)

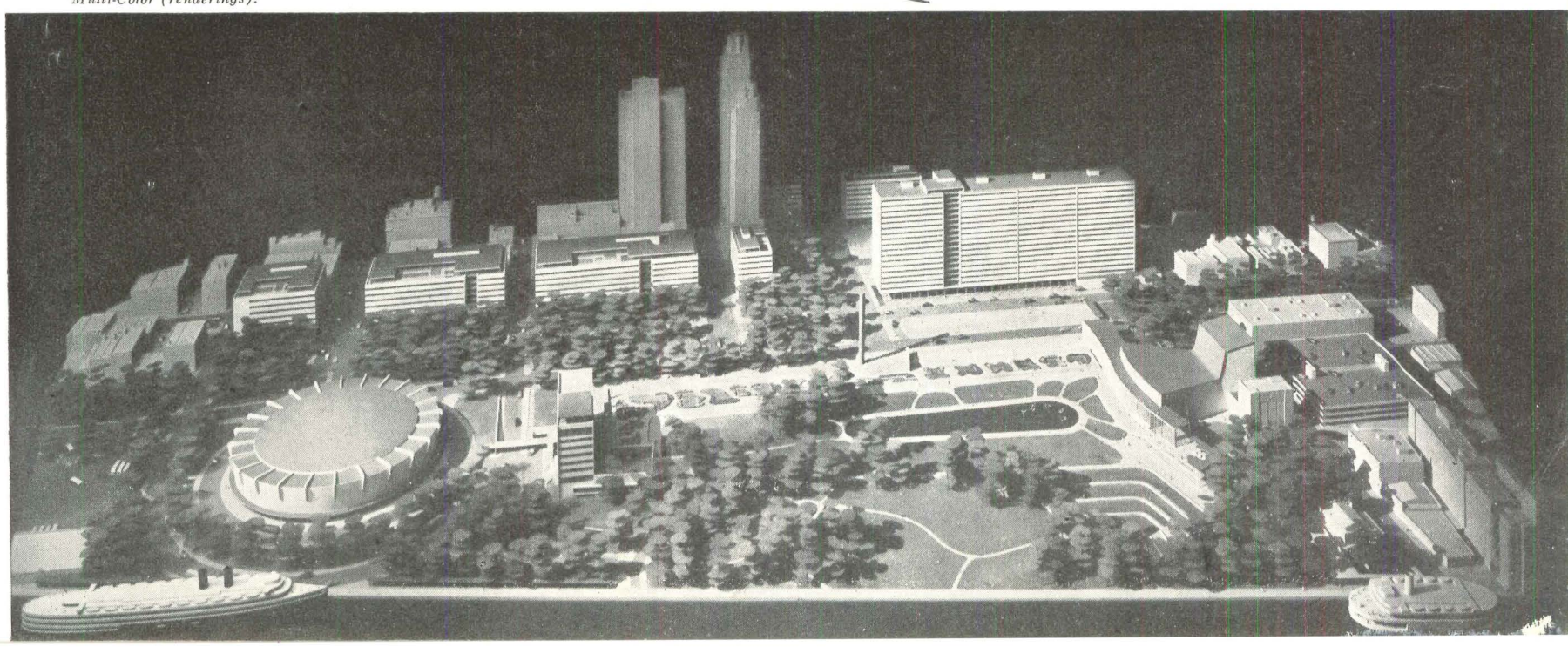
Next nearest to reality is the county-city office building which the Saarinens consider "the key to the whole civic center . . . the major element of design."

It has not been decided whether the Saarinens themselves will actually design any of the buildings. So far their role has been only that of consultant and coordinator. Explained George Emery, Director of the Planning Commission: "The Commission feared that if there were no strong overall design, with so many different architects building, the result would be a scheme with no unity." The Saarinen plan provides not only that unity, but a unique and splendid opportunity for Detroit to demonstrate to all crowded, pulsing U. S. cities a new concept in civic center planning.

1. Veterans' memorial building
2. County-city office building
3. Convention hall
4. State office building
5. Federal office building
6. Unassigned governmental buildings
7. Civic auditorium
8. Restaurant
9. Band shell
10. Docks for excursion boats
11. Parking garage over tunnel entrance
12. Parking garage



Photos: Hedrich-Blessing (models); Multi-Color (renderings).



vested. The yield from prime bonds has declined from its peak, and at the same time mortgage interest rates have risen. The net result is that these large investors are again seeking mortgages for investment of their funds. Mortgage money will be plentiful in 1949."

Greenbaum saw a reduction in the volume of construction in the year ahead—brought on by "high building costs, threatened rent ceilings on newly constructed apartment buildings and increased buyer resistance." Thus, "with a large amount of money seeking investment and fewer mortgages available because of fewer new buildings being built, the prospects are that mortgage interest rates will not rise during the year, but will remain at present levels." Economist Willis J. Winn of the University of Pennsylvania even saw evidence of a "downward pressure on the general level of the interest rate in the months ahead."

The mortgage bankers were not worried about observations that the peak of the real estate market had been passed. They saw plenty of attractive opportunities ahead in real estate investment. Robert C. Nordblom, of New York, outlined a few of the reasons: an existing reservoir of private money awaiting investment in real estate as "prices shake down;" a large number of new investors—people who have "made money in other businesses who look upon real estate as a prime investment, and as a means of capital gains;" foreign money looking for real estate investments in the American market.

Unattractive Security

One note of caution was sounded. L. J. Sheridan, of Chicago, who two years ago warned the bankers against investing in new office building construction, saw no reason to alter that warning. Office buildings constructed at prevailing costs—with the rental rates required to support those costs—would still be "unattractive as mortgage security," he said. Besides, he added, the existing buildings are "more than sufficient to meet the needs of business and industry at the present time."

The U. S. Savings & Loan League endorsed MBA's prediction. In a quarterly review issued for the first time, it cited the "rising volume of savings" as one factor which would "assure an adequate supply of mortgage money" and make the terms of mortgage lending "slightly more favorable to borrowers."

JOBS

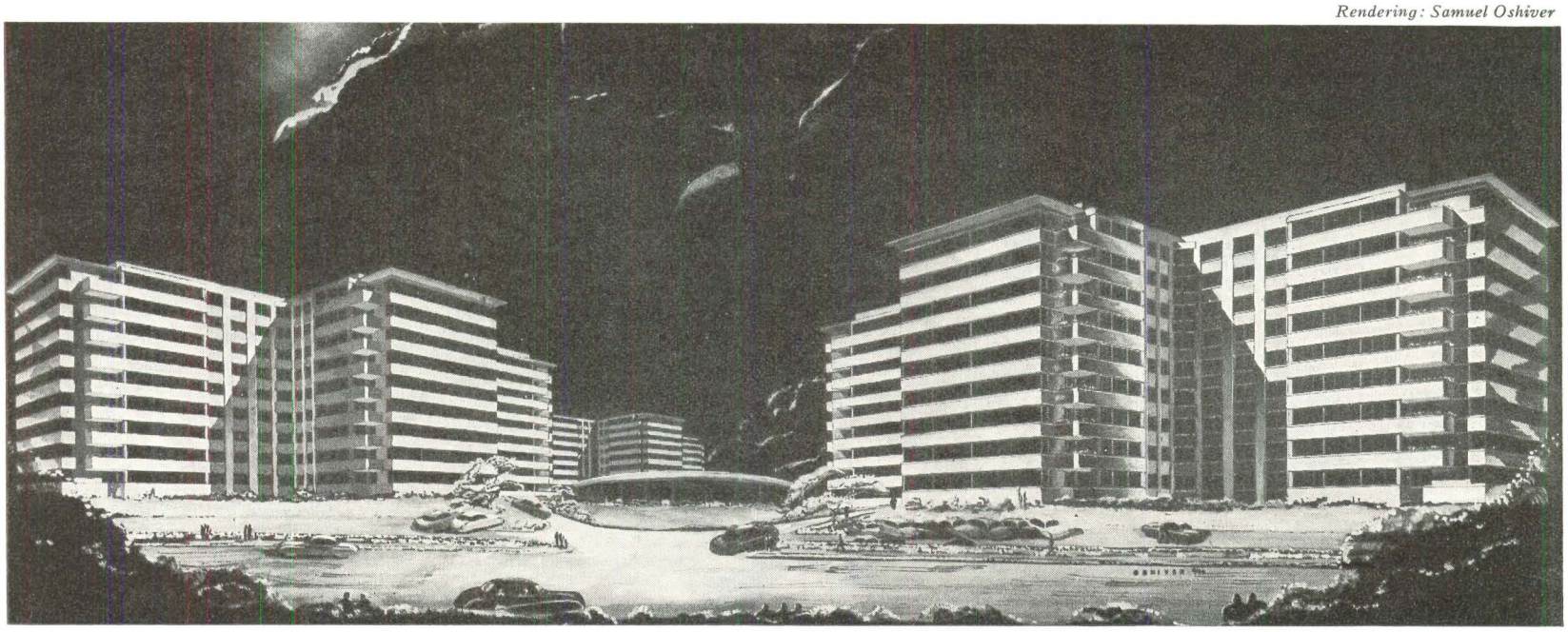
FIRM BID RETURNS

Public construction bolsters contractors' view of the future

"This will be the year of the reappearance of the firm bid," said Building Contractor Welton A. Snow. "From now on, we'll be working with it again." The firm bid, with its accompanying factor of intra-industry competition is to the building contractor what a buyer's market is to the rest of the industry.

It was abundantly clear that the nation's building contractors knew that the year of

Rendering: Samuel Oshiver



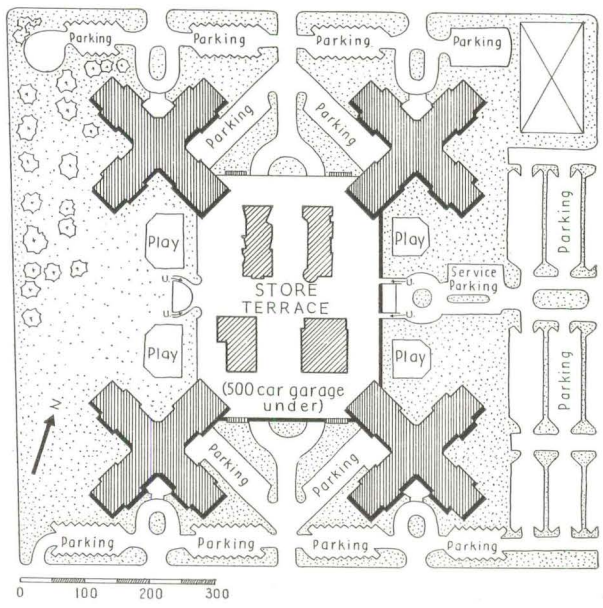
NEW JERSEY APARTMENT will house 1,035 families in four buildings

Ground was broken ten miles outside Philadelphia last month for the construction of a $10 million apartment development of modern design and spacious proportions. Four nine-story brick and steel structures will house 1,035 families.

Located in Collingswood, N. J., the development sits on an 18-acre tract; each structure will cover 4½ acres, and will be separated from the other buildings by large park areas. Architects J. Raymond Knopf and Samuel I. Oshiver (associate) have provided the living rooms of each apartment with an unbroken expanse of window extending from wall to wall and almost from floor to ceiling, eliminating what they call the "cliff-dwelling atmosphere now common in apartment house living." Rentals will range from $80 a month for a one-bedroom apartment to $120 for three bedrooms.

A separate shopping terrace includes a 300-seat restaurant, drugstore, beauty shop, and nine other stores. There is also underground garage space for 500 cars. Owners are Sylvester A. Lowery and his son, Sylvester J. Lowery. E. J. Frankel and the younger Lowery are the builders.

The loan is an FHA 608; the County Trust Co. of Tarrytown, N. Y., is mortgagee.



resistance and competition was upon them. They had seen enough of the new year already, by the time they met in New York City last month for the annual convention of the Associated General Contractors, to report a disturbing falling off in private residential and commercial construction—from Atlanta to Boston, and all across the country. Like the merchant homebuilders a month before (FORUM, Mar., '49), they made a soul-searching convention of their time together.

Fortunately for the contractors, there were forseeable compensations, in the form of big government contracts, to offset the setbacks. They looked for an increase of $89 million in public residential construction (much of it military housing) and $375 million in public non-residential. All of this, they decided, would permit them to hold the line at last year's mark. Actually, they expected a 1949 construction total of $12,075,000,000, as compared with 1948's $11,656,000,000; but there would be no profit in that slight increase—it would all go, and a little more, into the 5 per cent hike in construction costs which they foresaw for 1949.

Born dead

Their prediction of 1949's activity was based on firm assumptions: an adequate supply of building materials, and a "continued high level of unemployment." (This was as close as the builders got to a record statement on labor. In one division meeting, they were on the point of recording that they expected labor to gain a fourth general increase, when one member jumped to his feet and reminded the group that such a vote would be "extremely bad publicity;" the vote died aborning.)

One issue the building contractors avoided like sin during their four convention days was public housing. Many of the contractors share the merchant housebuilder's moral objections to government-in-housing. But there is one essential and conspicuous difference between the merchant and the contractor: if public houses are built, the contractor will build them.

The building contractors' conception of their next building year pretty well mirrored the expectations of the other component of AGC—the Railroad Contractors' and Heavy Construction divisions. AGC Managing Director H. E. Foremen thought the year looked ripe for a $25 billion business—$1 billion more than 1948. (New construction would total $18,750,000,000. The rest would go into maintenance and repair.)

More for the money

The 1,200 contractors listened intently to advice from men outside the industry—economists and finance men. Harvard University Economist Sumner H. Slichter warned them that the building industry must give its customers "more for their money." New York Banker Guy C. Kiddoo urged them not to "simply accept high costs as inevitable and pass them on to owners and public authorities."

Paul Kent



TEICHERT

The convention also:

▶ Elected as its new president Adolph Teichert, Jr., of Sacramento, Calif.

▶ Recommended the establishment of a labor-contractor committee to define more exactly the amount and type of work "which can be taken by any workman already on a project . . ." without lighting the fuse to a jurisdictional dispute.

▶ Opposed the establishment of any new Tennessee Valley Authorities.

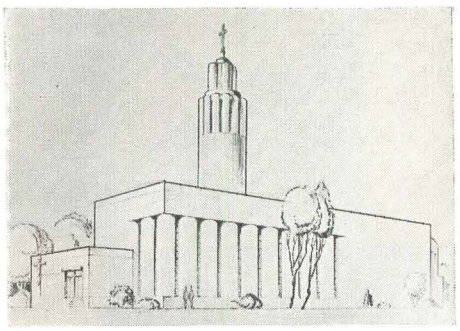
MISCELLANY

Atomic Start

In Manhattan, atomic energy was used for the first time to lay a cornerstone. Three hundred spectators gathered on the Fifth Avenue site of the old William H. Vanderbilt mansion where the Crowell-Collier Publishing Co. is erecting its new 19-story home, and watched Columbia University Physicist J. R. Dunning press a button which in turn rang a bell, flashed a light and split ten atoms of Uranium 235. When it was all over, the two-ton cornerstone was in place.

Rural Harmony

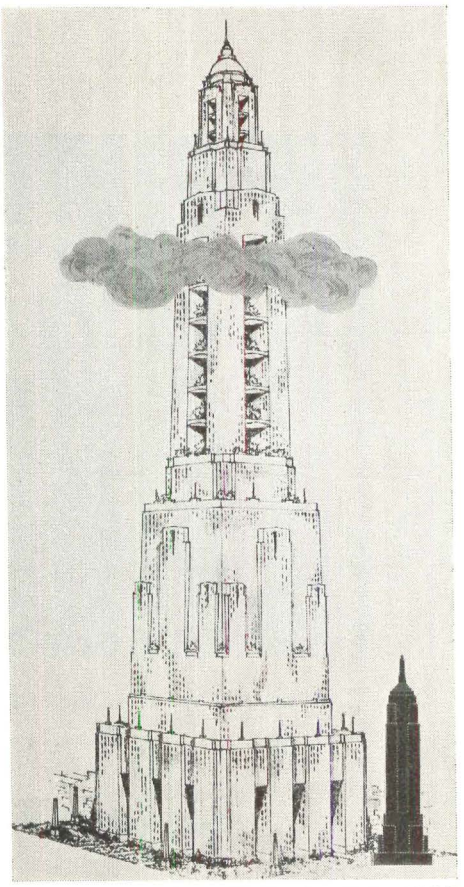
Catholic Bishop Frank Thill wanted his new Sacred Heart cathedral at Salina, Kan., to harmonize with Kansas rural life. He so instructed Cincinnati architect Edward J. Schulte. The resulting sketch (see picture) combined "the classic architecture of ancient Greece and the functional forms of the Kansas grain elevator." Bishop Thill's diocesans will build it next spring, either with concrete or native Kansas stone.



Kansas cathedral

Landmark

San Francisco Architect Anthony M. McSweeney, 80 years old, is a man with tall ideas: he proposed to Mayor Elmer Robinson that San Francisco build a 440-story stratoscraper, which would be four times as high as New York's Empire State Building, and at once solve the city's housing, school and parking shortages.



Four times the Empire State (right)

McSweeney's proposed 5,280-ft. building would house 400,000 persons, 1,000 stores and shops, 50 schools, 50 movie theaters, 50 clubs, 20 churches, 10 hospitals, a scattered group of gymnasiums, department stores, banks and offices and an underground garage for 80,000 cars. It would be spread over 16 city blocks and cost between $4 and $7 billion.

Designer McSweeney admitted that there was little chance for the building's construction, but that did not dampen his enthusiasm. Said he, somewhat modestly: "It would be a landmark."

Conversion

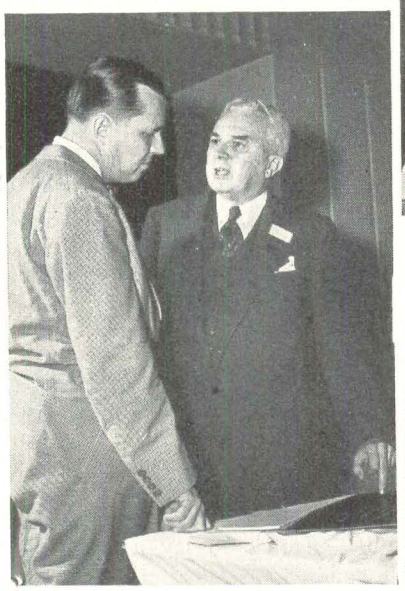
Directors of the Virgil State Bank in small (pop. 150) Virgil, Ill., made plans to convert their bank into a dwelling. That would be cheaper, they decided, than providing it with adequate protection against robberies. The directors felt that they could speak with experience about the necessity of protection: over the last year their cashiers have been obliged to hand out $8,000 to three different sets of gunmen.

Competitive Bid

Nearby Rock Island, Ill., likes the idea of having a plumbing contractor for mayor. Voters in the election primary last month fixed things so that if Republican incumbent Melvin McKay loses the mayoral election April 19, he will lose it to Democrat C. C. Rosenfield, another plumbing contractor.



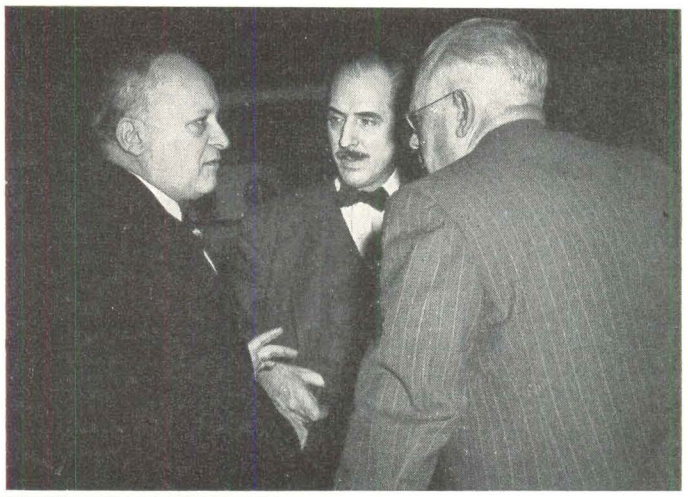
Daniel Schwartzman, Ernest Kump, Henry L. Kamphoefner



Facing camera, John F. Staub



Geiger Smith, W. J. Slavin, Arthur Q. Davis

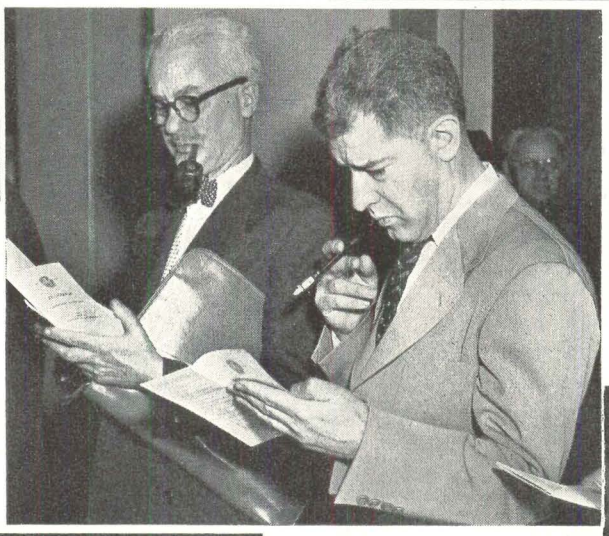


R. E. Martens, S. O. Hammon, W. L. Perkins



Mrs. O'Neil Ford, Ralph Bryan, T. D. Broad

Henry S. Churchill, Simeon Heller



Morris Ketchum

F. LL. W. among friends





Photos: Dorsey & Peters

A.I.A. meets in Houston

A greater number of American architects came together during four sunny days in Texas last month than probably ever had met before. And the more than 1,300 members and guests of the A.I.A. who convened in Houston March 15-19 made the 81st A.I.A. convention not only a record breaker in attendance, but added other evidence that their Institute is at a high point of vitality. One example of this vitality was the presidential election, contested this year by two of architecture's most prominent men, Ralph Walker and William W. Wurster. Walker's victory was recognized as the victory of the conservative element of the Institute; all members of the slate which opposed him were defeated.

The convention's theme was "American Architecture in the Atomic Age," and the assembled architects heard Atomic Experts Admiral W. S. Parsons and Sumner Pike describe the high responsibility the architect must bear in the future. Technical specialty of the convention was the use of color in design, with color specialists Isay Balinkin, Ralph M. Evans, Carl E. Foss, Faber Birren, and Julian Garnsey on hand to lecture attentive audiences. Institute business sessions were busy, with outgoing president Douglas Orr operating briskly at the gavel; Houston architects provided an active social schedule.

But the climax of the convention—and a high point in the history of the A.I.A.—came during the final evening, after the convention banquet had been eaten and enough tables had been removed from the main ballroom of the Rice Hotel to allow all the 1,300 diners to pack in—standing or sitting—to witness a long due ceremony.

". . . add atomic blast to the list of catastrophes" — Rear Admiral W. S. Parsons





". . . this token of esteem from the home boys"

When Frank Lloyd Wright came into the room, the 1,300 gave him a rising ovation which did not quiet until a minute after he had walked serenely across the floor and up behind the long speakers table, to receive the gold medal of the Institute.

The citation just delivered by President Orr had read, in part: "Frank Lloyd Wright has moved men's minds . . . has kindled men's hearts. An eager generation of architects stands today as his living monument. By precept and example he has imparted to them the courage to live an architectural idea. It is for that courage, that flame, that high-hearted hope, that contribution to the advancement of architectural thought that the highest award of the American Institute of Architects is presented to Frank Lloyd Wright."

The great man stood before the microphone and spoke quietly in response, without notes, for a half hour: "No man climbs so high or sinks so low that he is not eager to receive the good will and admiration of his fellowmen . . . So I feel humble and grateful . . . It has been a long time coming from home. But here it is at last and very handsome indeed. And I am extremely grateful.

"I don't know what change it is going to effect upon my course in the future. It is bound to have an affect. I am not going to be the same man when I walk out of here that I was when I came in. Because, by this little token in my pocket, it seems to me that a battle has been won.

"I felt that way—I was sitting in my little home in Arizona in '41 and the news came over the wire that the Gold Medal of the Royal Institute of British Architects had fallen to a lad out there in the Middle West, in the tall grass.

"Well, I felt then that the youngsters who have held, we will say, with me and who have believed and made sacrifices and taken the gaff with me had won a world wide fight."

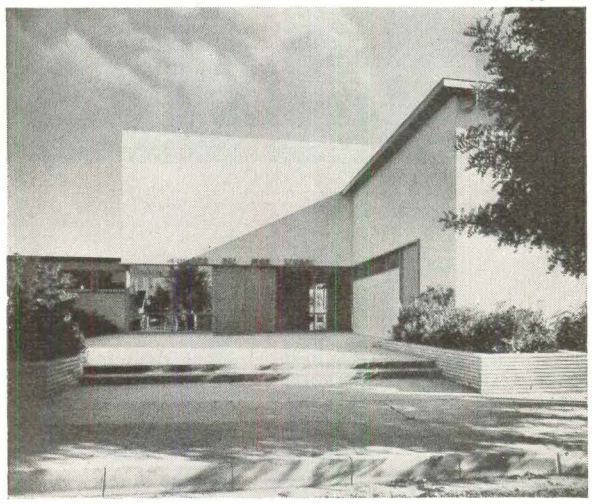
It was an unusually benign F. L. Wright speaking, even in his explanation of why he had never become a member of the A.I.A., but had instead "consistently maintained an amateur status." But he ended on a strong note: ". . . this thought that we call organic architecture has gone abroad. It has come back home . . . Now what are we going to do with it? Are we going to let it become a commonplace and shove it in the gutter, or are we really going to look up to it, use it, honor it—and believe me, if we do, we have found the centerline of a democracy. Because the principles of an organic architecture when you comprehend them naturally grow and expand into this great freedom we hoped for when we founded this nation and that we call democracy."

At that point Wright paused, said, "Well, it's enough, isn't it?" and started back out of the room. The architects rose again and continued to applaud until after he was gone.

A.I.A. officers elected for the coming year included, besides Walker: Glenn Stanton of Portland, Ore., First Vice President; Kenneth E. Wishmeyer of St. Louis, Mo., Second Vice President; Clair W. Ditchy of Detroit, Mich., Secretary; Charles F. Cellarius of Cincinnati, Ohio, Treasurer; to the board of directors, Arthur C. Holden, representing the New York District and Wilbur H. Husler of Minneapolis, Minn. representing the North Central States District.

Members in session adopted an amendment which alters Institute dues, placing most members on a sliding scale between 25 and 50 dollars a year figured on their net profits. In preliminary sessions the board of directors also adopted a program recommended by the committee on building costs which called for increased activity of architects in the low cost housing field. The A.I.A. convention next year will be held in Washington, D. C.

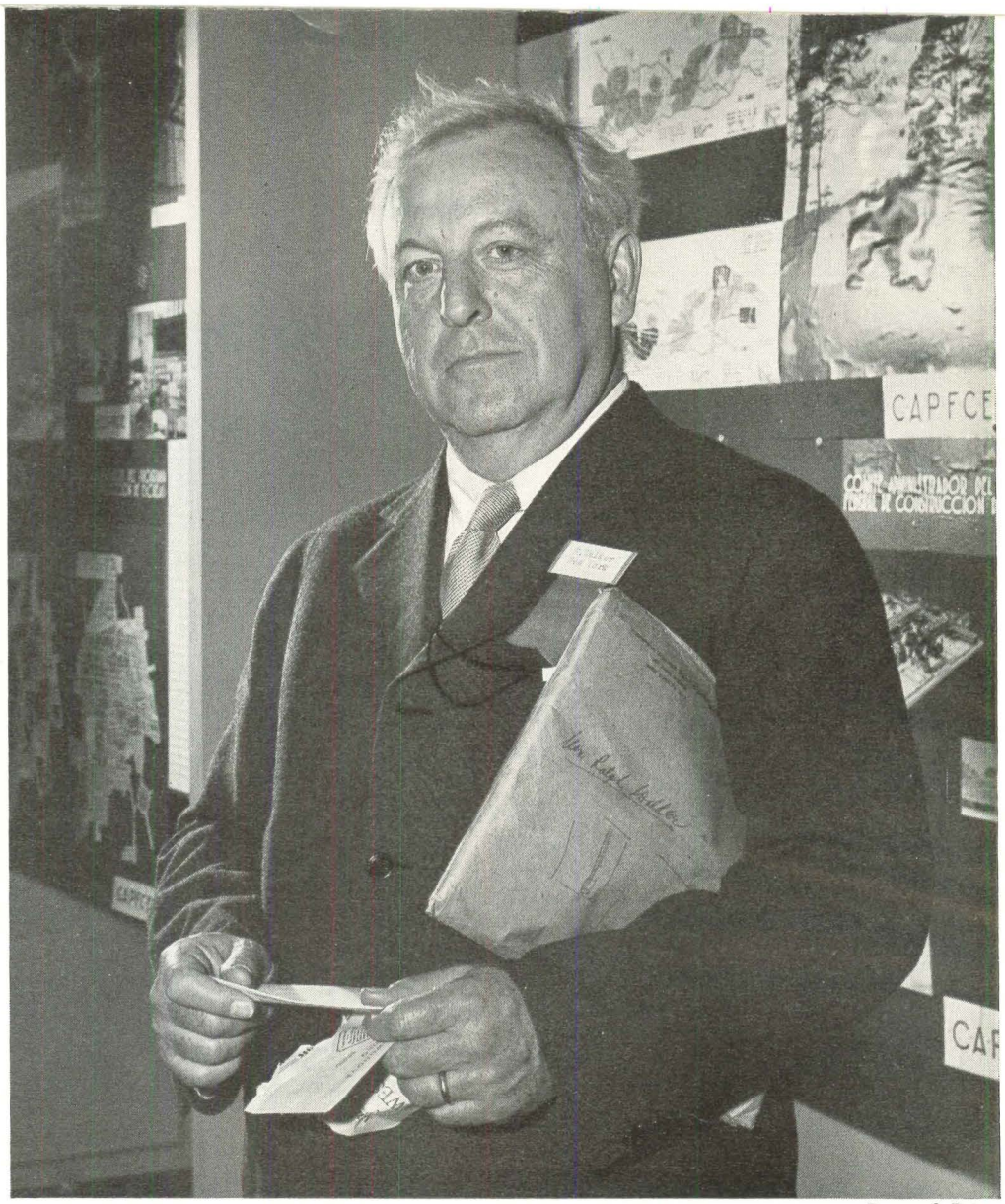
Fred Dapprich



Three other awards made at the convention were the annual Fine Arts Award to Louis C. Rosenberg of Fairfield, Conn., artist and architect, and two top ratings in the First Annual Honor Awards Program: a school (above) in Corona Del Mar, Calif. by Marsh, Smith & Powell of Los Angeles, and a residence (below) in San Francisco by Frederick L. Langhorst. Other honor awards are shown opposite page 17.

Roger Sturtevant





Dorsey & Peters

The New President

When he became president of the Institute last month, Ralph Thomas Walker was merely adding to what is already one of the biggest of U. S. experiences in big building: 30 years participation in an immense architectural firm — Voorhees, Walker, Foley & Smith of New York.

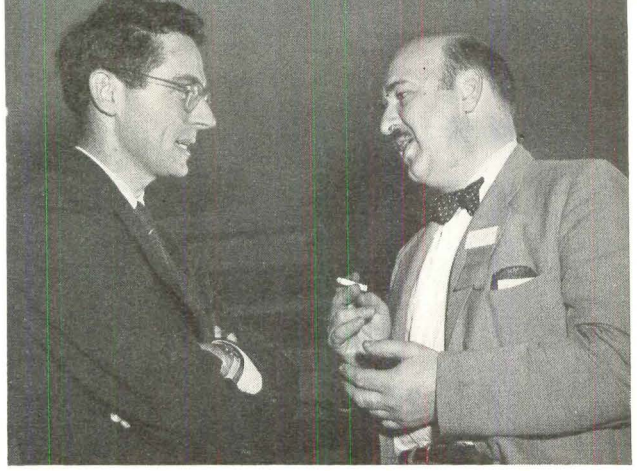
The firm was McKenzie, Voorhees & Gmelin in the Twenties when Squabby Walker went to work as a draftsman there. He made the letterhead as junior partner in 1927, after he had designed the New York Telephone Building and had won the Gold Medal of the local Architectural League for it. He is now nearing sixty, and the senior partner of a firm which probably ranks second in volume of work only to the new generation's phenomenon, Skidmore, Owings & Merrill.

Walker is a short, ruddy, white-haired professional who is noted for his ability to handle both clients and committees. Clad usually in a soft-shouldered conservative suit with the jacket buttoned up close to the knot of his tie, he is a notable and familiar figure at gatherings of architects and zoning officials; he has served as both chairman of the New York City A.I.A. Chapter, and President of the Architectural League. An M.I.T. alumnus class of 1911, he won the Rotch Traveling Fellowship in 1916, and was a camouflage lieutenant in the first World War. He and his wife have lived since 1923 in suburban Chappaqua, for which he wrote the zoning ordinance and whose growth is one of his great interests. He commutes to New York during the week and works weekends at home. "I use the weekend to mend the week."

In the Twenties the newspapers called Raymond Hood, Ely Jacques Kahn and Ralph Walker the "Three Musketeers of the New Order of Architecture", but the new order has changed. Sometimes labeled a conservative, Walker says, "I do not think of myself as being a conservative but as that true radical, i.e. an individual." (At the Grand Rapids A.I.A. Convention two years ago, when he objected to a lecturer's impatience with the inertia of conservatism, he was asked in reply if middle-of-the-roaders didn't tie up traffic. Walker's response: "No, it was the place from where traffic was directed toward a purposeful result.) During much of the Twenties Walker, Kahn, Hood, and Joseph Urban met for lunch every Friday below Hood's lavish apartment at Mori's in New York City's Greenwich Village to decry the academic tradition of the day and dissect each other's work. Among Walker's designs are the Irving Trust Co. at 1 Wall Street in New York, and many big telephone buildings.



Thomas J. Shefchik, George H. Shanley



J. E. Anderson, W. F. Bogner



W. A. Grolock, H. Van Hoefen, and Registrar

Julian Clarence Levi, Roberto A. Espinosa



H. E. Calhoun, E. H. Lunie, Douglas Orr, J. W. Rankin, E. R. Purvis



Robert Cerny, Harold Spitznagel



H. Weller, Frank J. Hoffman



Photos: Dorsey & Peters

New Fellows of the A.I.A. appointed at the 81st annual convention:

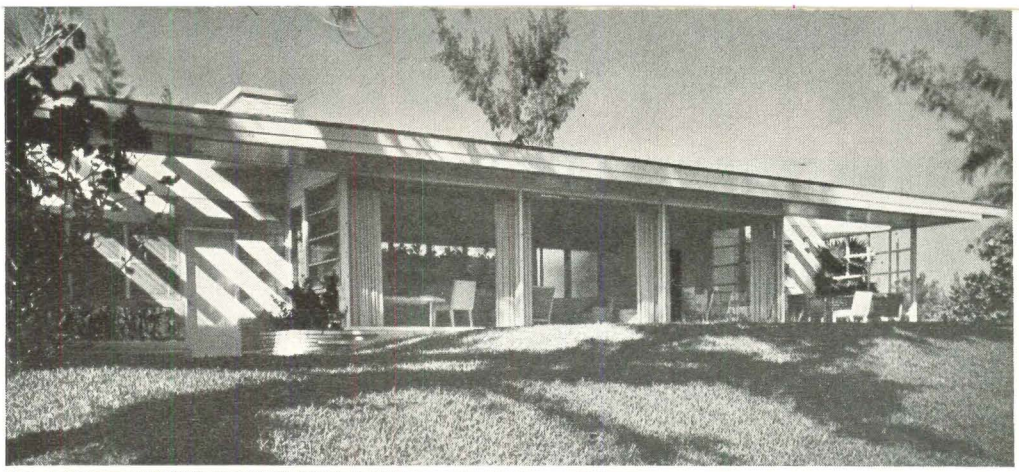
CALIFORNIA: Earl Theodore Heitschmidt, Los Angeles.
COLORADO: Burnham Hoyt, Denver.
FLORIDA: John Llewellyn Skinner, Miami.
GEORGIA: George Harwell Bond, Harold Bush-Brown and Henry Johnston Toombs, Atlanta.
ILLINOIS: Jerrold Loebl and Nathaniel Alexander Owings, Chicago.
KENTUCKY: Frederic Lindley Morgan, Louisville.
LOUISIANA: Arthur Feitel, New Orleans.
MICHIGAN: Harry L. Mead, Grand Rapids.
MONTANA: Angus Vaughn McIver, Great Falls.
NEW YORK: James William Kideney, Buffalo, and Matthew W. Del Gaudio, Wallace Kirkman Harrison, Daniel Paul Higgins, John Crosby Brown Moore, Louis Skidmore and Harold Reeve Sleeper, New York City.
NORTH CAROLINA: Walter Williams Hook, Charlotte.
OHIO: Harry Blake, Cincinnati, and Joseph Lewis Weinberg, Cleveland.
OREGON: Glenn Stanton, Portland.
TEXAS: Birdsall Parmenas Briscoe, Alfred Charles Finn, Kenneth Franzheim, Milton Bowles McGinty and William Ward Watkin, Houston.

A.I.A. HONOR AWARDS

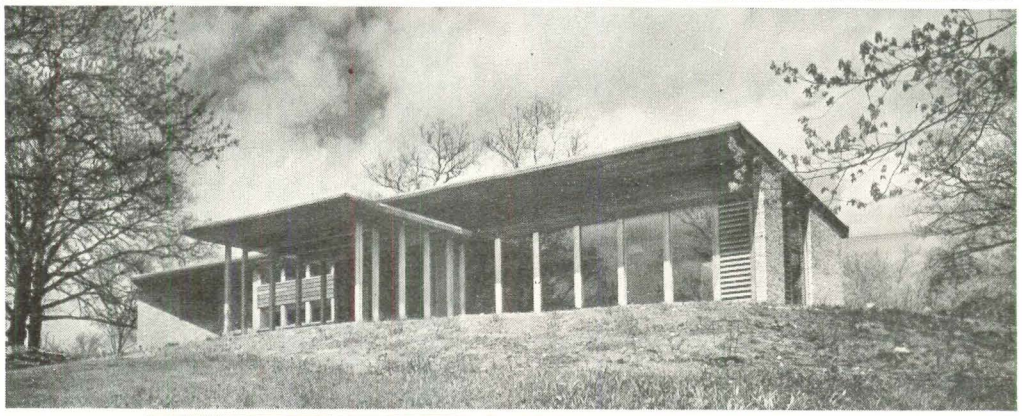
All A.I.A. honor awards in houses, shown here, and schools, the other category, were of contemporary design, a demonstration of recent years' change in the A.I.A. Honor Awards for schools went to John Lyon Reid of San Francisco, Maynard Lyndon of Los Angeles, Daniel, Mann & Johnson of Los Angeles, Perkins & Will of Chicago, O'Nell, Howlett & Luckenbach of Detroit, Donald Barthelme of Houston, and George Dahl of Dallas. First awards are shown on previous page.

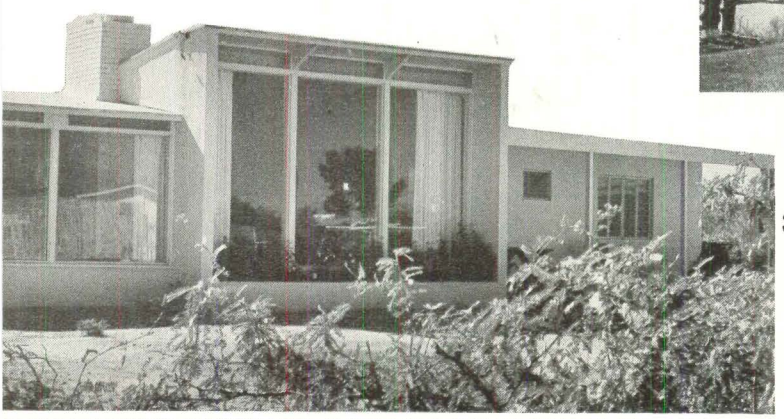
A.I.A. Honor Awards to architects for residences: 1. Robert Little, Miami Beach and Fort Lauderdale, and William G. Crawford, Fort Lauderdale, Fla.; 2. Morgan Yost, Kenilworth, Ill.; 3. Arthur T. Brown, Tucson, Ariz.; 4. Francis E. Lloyd, San Francisco, Calif.; 5. Carl Koch & Associates, Belmont, Mass.; 6. Wurster, Bernardi, and Emmons, San Francisco, Calif.; 7. Mario Corbett, San Francisco, Calif.; 8. Thornton Abell, Santa Monica, Calif.

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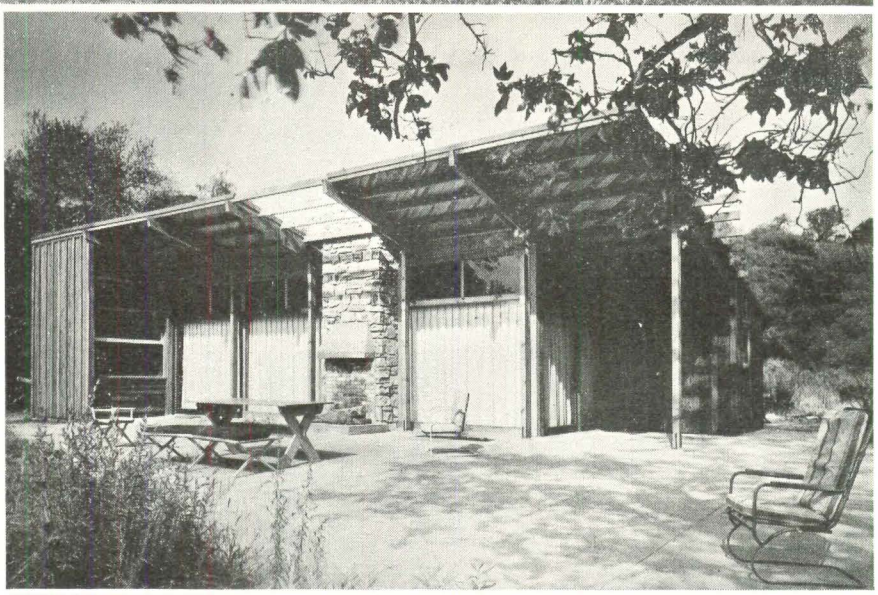
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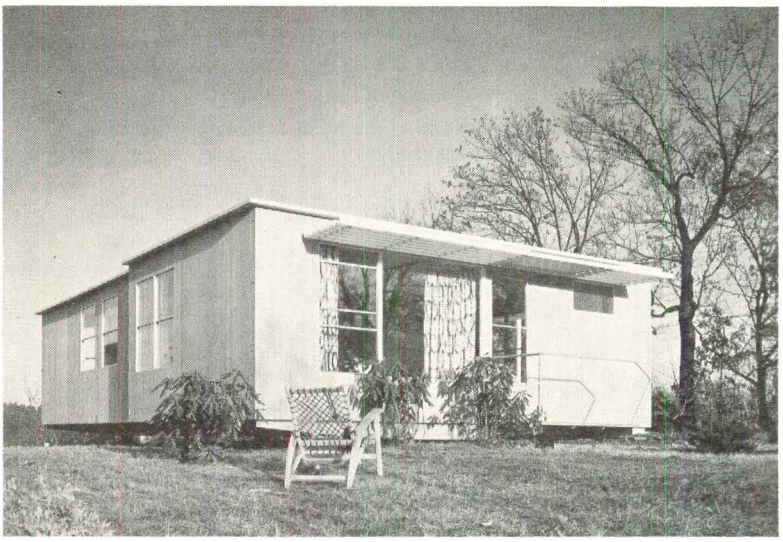




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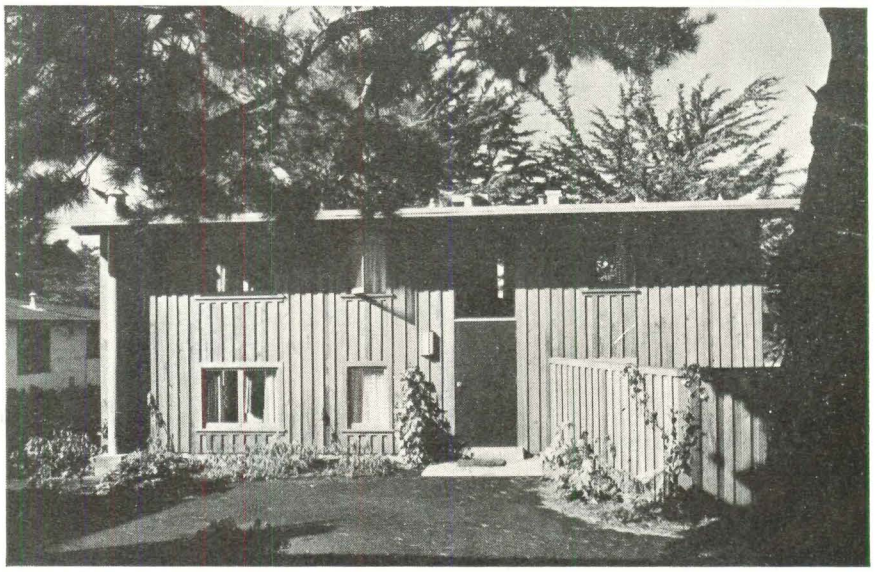
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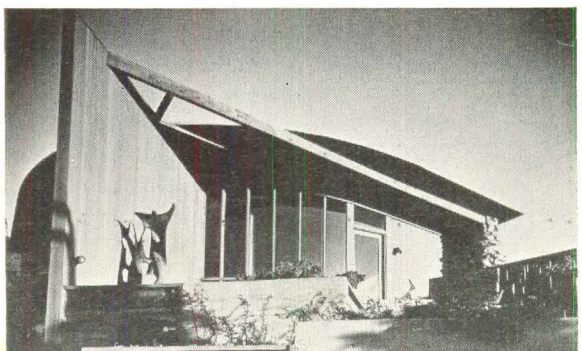


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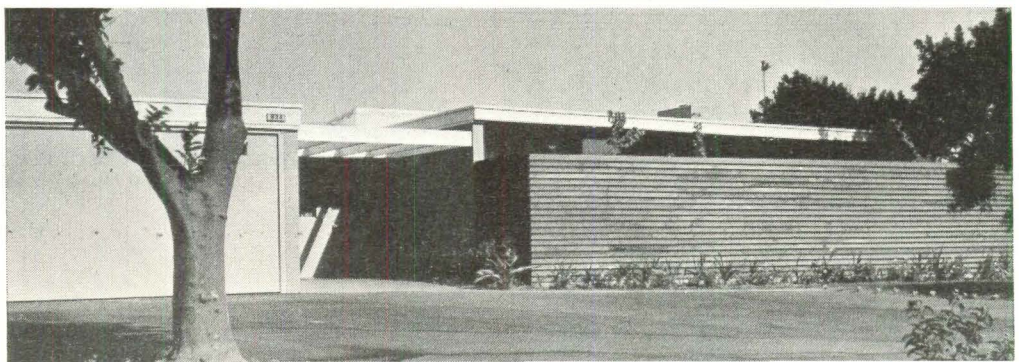
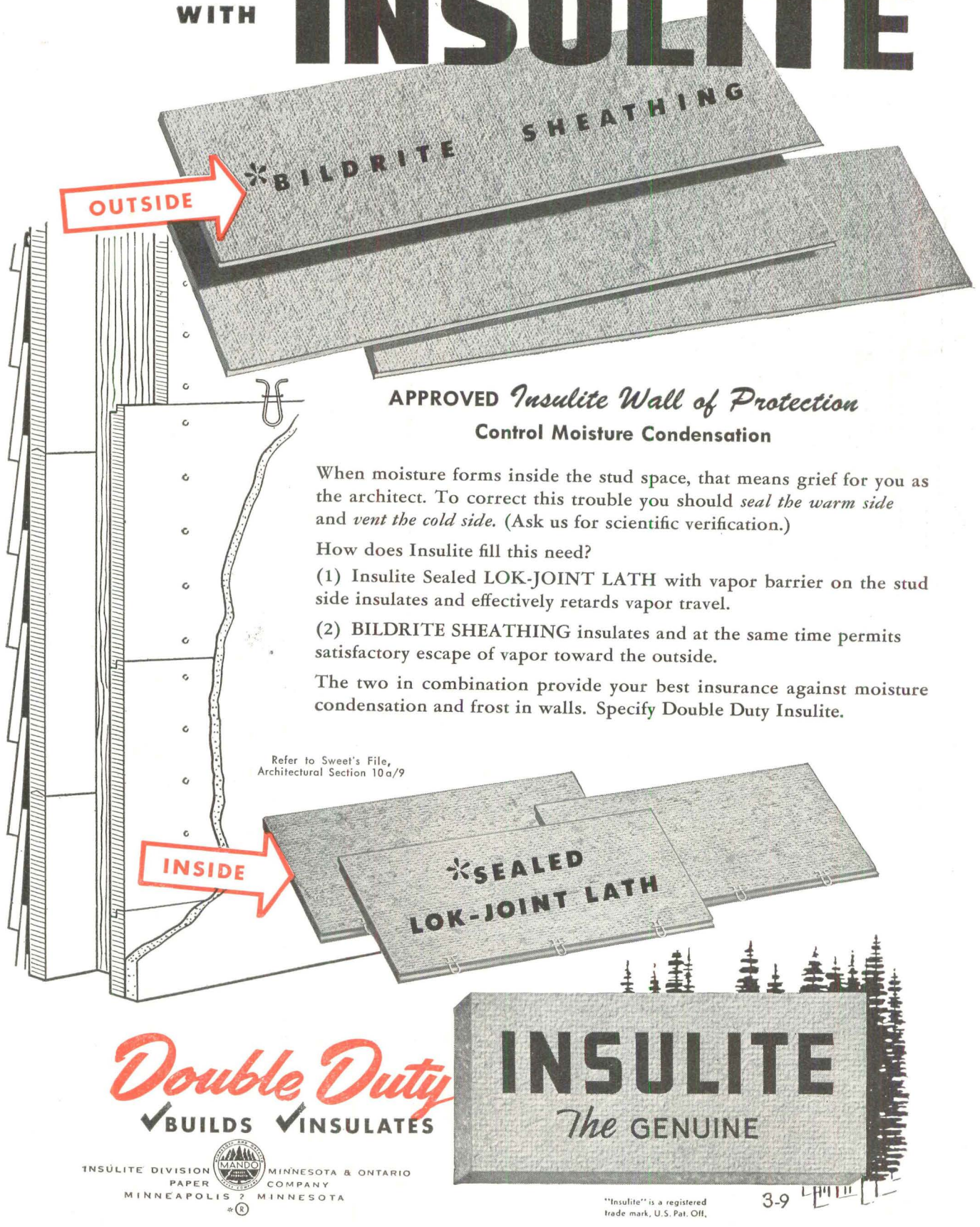


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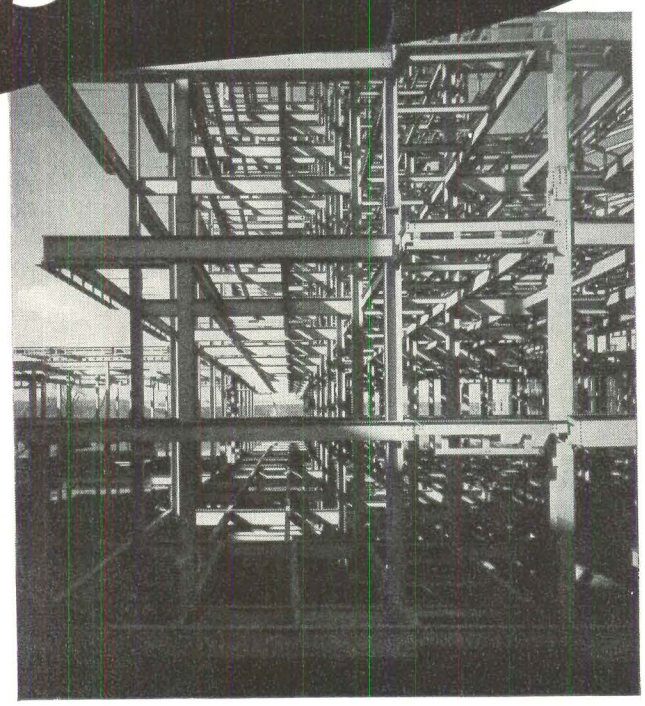
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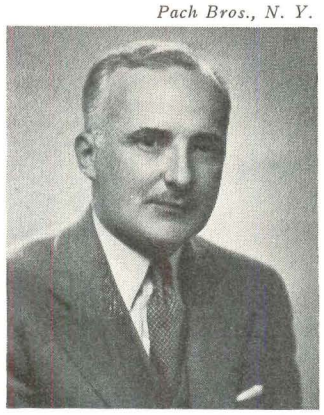
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NEWS

NEW YORK A.I.A. HONORS SKIDMORE

Medal goes to Designer of Hotel Terrace Plaza

Pach Bros., N. Y.



The New York Chapter of the A.I.A. presented its annual Medal of Honor to Louis Skidmore, senior partner of the architectural firm of Skidmore, Owings & Merrill (which recently made headlines by its job of integrating art and architecture in Cincinnati's Terrace Plaza Hotel). Skidmore's speech of acceptance stressed the architect's new role in building — "Architectural thought is no longer ingrown . . . We are now taking our rightful places as initiators and coordinators of the many factors involved in modern building. We must constantly resist the danger of becoming set in our ways."

PHILADELPHIA CHOOSES BEST DESIGNS

Tuberculosis sanatorium and beach house get top honors in Philadelphia show

The Philadelphia Art Alliance Medal for the best example of contemporary architecture went to William A. Ganster and W. D. Pereira's design of the Lake County Tuberculosis Sanatorium, Waukegan, Ill. (FORUM, Oct. '40). The state A.I.A. award for the best entry by a Philadelphian was given to the Peaslee Beach House by Vincent Kling (FORUM, Mar. '42). Both awards were made in connection with the exhibit held during March at the Art Alliance gallery to acquaint Philadelphians with architecture in other sections of the U. S. Work by 11 native sons and 30 outside architectural firms was presented. The jury which selected prize winners from buildings shown in the exhibit was composed of Henry Wright, Max Abramowitz and Edgar I. Williams. *(Continued on page 20)*

Jules Schick



Jury views prize winning drawings. Kling's beach house (right) was best local entry.

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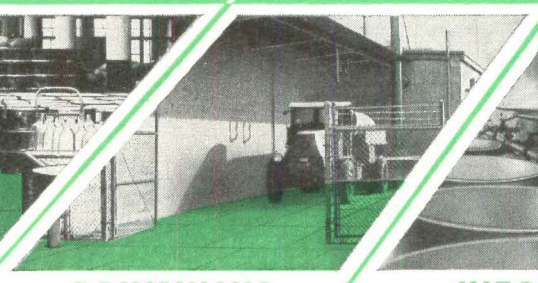
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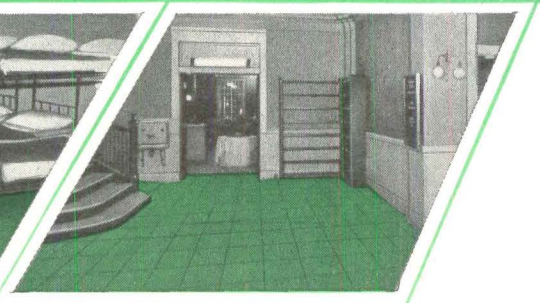
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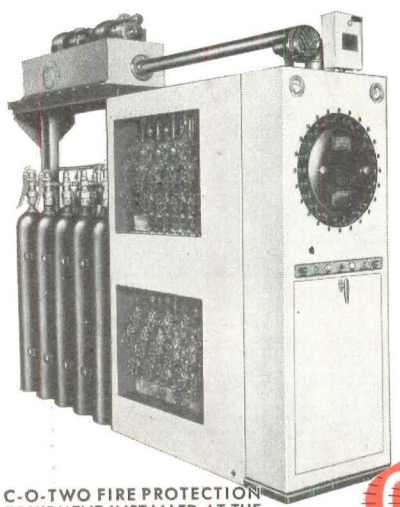
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NEWS

COLUMBIA ADDS TO PLANNING STAFF

Klutznick, Churchill and Tretter are new members of University Planning Division

Phillip Klutznick, president of American Community Builders Inc. was recently made an advisory member of Columbia's Institute for Urban Land Use and Housing Studies. Two other figures well-known to the building industry have also been added to its general planning department: Henry S. Churchill, town planner and architect, as critic and Associate in Planning; and Maxwell Tretter, former Director of the New York Housing Authority, as lecturer.

INTERIOR OF DISTINCTION

American Institute of Decorators presents its choice for best movie set of 1948

The title of "most distinguished interior" shown in a 1948 movie was bestowed on the set below (from *The Velvet Touch*) by the American Institute of Decorators. Antici-



pating the probable question "why," some quotes from the jury report are appended: "Particular tribute" is paid to the "choice and use of paintings," as well as "to the arrangement of furnishings." This "room with drama and many moods" was also found "commendable" for (of all things!) "inventive detail."

MUSEUM MEETS MANUFACTURER

Boston Museum will further good industrial design

The Boston Institute of Contemporary Art has formally stepped into the arena of everyday design. Its newly-formed *Department of Design in Industry* grew out of already successful cooperation with several silver and glass manufacturers and plans are now made for expanding its scope to include ceramics, furniture and carpets.

This new program will offer broad research facilities to manufacturers, industrial designers, retailers and schools. Any or all may contact the museum for consultation on practical problems, surveys of design within the industry, training of personnel, analyses of consumer attitudes, and endorsement and exhibition of well-designed products.

The Advisory Committee consists at present of Serge Chermayeff, Brig. Gen. Georges Doriot, Alfred M. Frankfurter, Edgar Kaufmann, Jr., Robert W. Kennedy and Gyorgy Kepes. Director of the new department is Theodore S. Jones, former Dean of Hamilton College.

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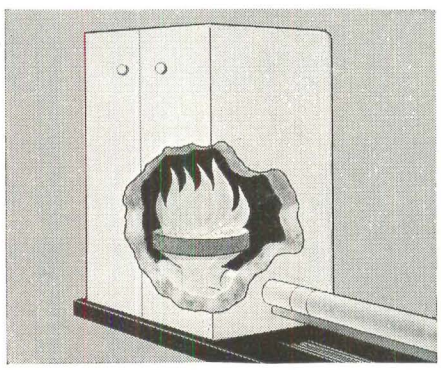
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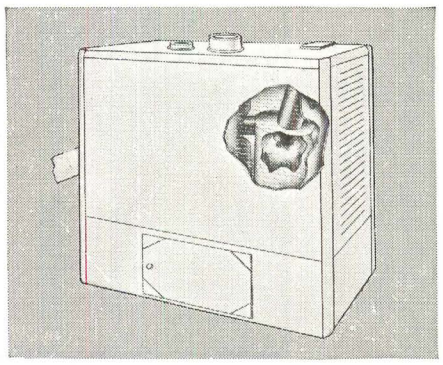
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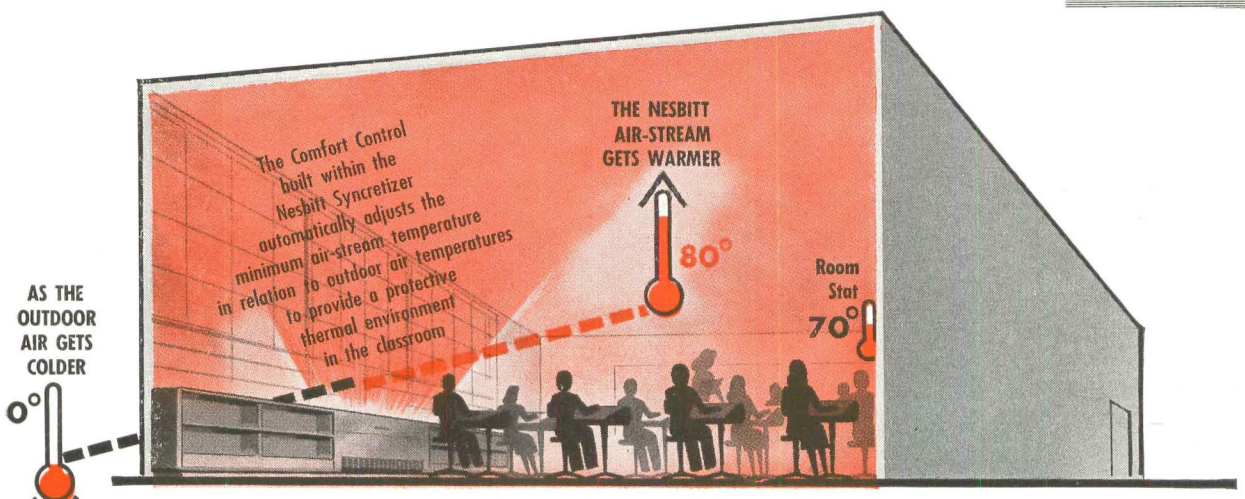
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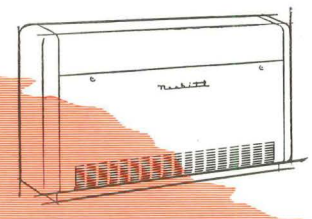
Stop looking at that room thermostat! It is a deceiver! Modern air-conditioning has banished its "cold 70°." Today we know that the real threat to comfort in the classroom lies in cold walls and exposed surfaces—especially in the large window area.

The built-in Comfort Control of the Nesbitt Syncretizer Unit Ventilator constantly samples outdoor air and automatically adjusts the minimum temperature of the air-stream—warmer as outside temperature goes down . . . cooler as outside temperature rises.

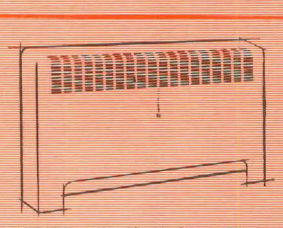
With the Nesbitt Outdoor Air Volume Stabilizer preventing sudden cold blasts on windy days, and the Nesbitt Directed-Flow Adjustable Outlet permitting a fan-like discharge of protective warm air, the pupils and the teacher are enveloped in a thermal blanket—never too hot nor too cold. These exclusive features of the Nesbitt Syncretizer create an entirely new standard of classroom comfort.

The New Series 500 Nesbitt Syncretizer is also today's most beautiful unit ventilator. It may be installed independently or as a unit of The Nesbitt Package with Storage Cabinets (and Convector when desired). Ask for Publication 258.

Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa., and sold also by American Blower Corporation.

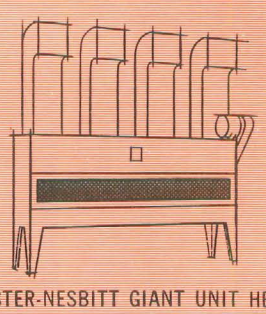


NESBITT SYNCRETIZER UNIT VENTILATORS

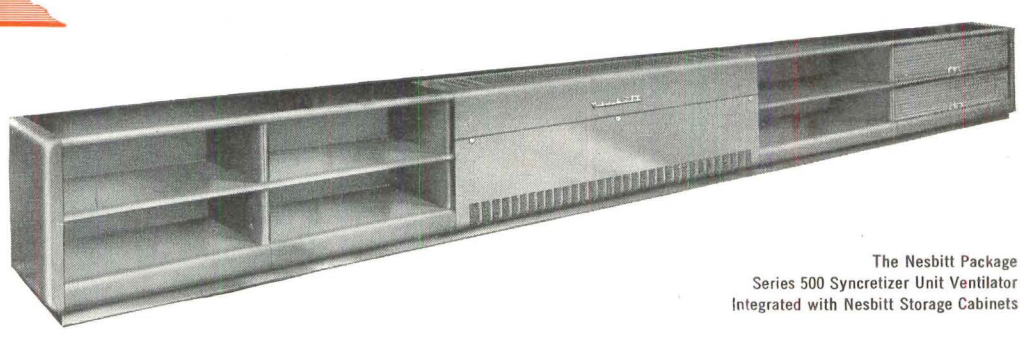


NESBITT MODEL U CONVECTORS

"MADE BY NESBITT" Guarantee of Quality



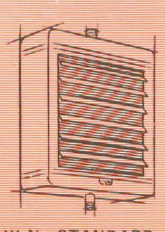
WEBSTER-NESBITT GIANT UNIT HEATERS



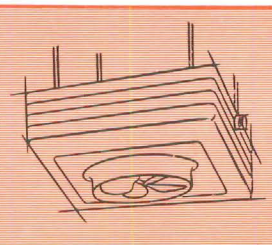
The Nesbitt Package
Series 500 Syncretizer Unit Ventilator
Integrated with Nesbitt Storage Cabinets



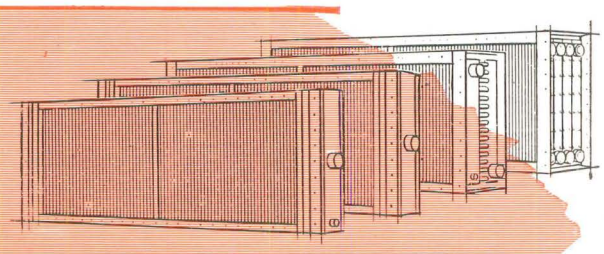
WEBSTER-NESBITT SERIES R HEATERS



W-N STANDARD AND



LITTLE GIANT UNIT HEATERS



NESBITT HEATING AND COOLING SURFACES

LETTERS

Use Wall-Tex as a major selling feature

The first thing prospective buyers or tenants see inside a home are the walls and ceilings. If those important areas are decorated with Wall-Tex for smart, enduring beauty, you have a major selling point. Millions know Wall-Tex by its name and reputation. They see it consistently advertised in leading home and service magazines. They go for its style-right designs and colors. They appreciate its repeated washability with soap and water and its strengthening properties for walls and ceilings to avoid unsightly plaster cracks.



WALL·TEX
fabric wall coverings

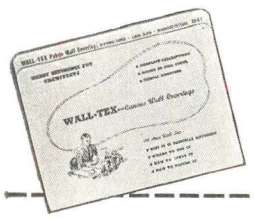
REPLACEMENT OR REFUND OF MONEY — Guaranteed by Good Housekeeping — IF NOT AS ADVERTISED THEREIN



Specified by Architects and Builders for 25 Years

Consider the special advantages of this established product. Specify and ask for Wall-Tex by its registered brand name. Wall-Tex is a top-quality product used in homes and major housing projects everywhere.

File of Essential Information and Sample Swatches



Complete reference material fully describes the practical Wall-Tex features. Sample swatches are included so you can feel and test the strong fabric and washable finishes. Folder also describes Wall-Tex Stiffened Canvas and Lining Cloth, perfect foundations for painting. Mail the coupon.

Columbus Coated Fabrics Corporation, Dept. AF-49, Columbus, Ohio

Please send the free Wall-Tex file of information and Sample Swatches.

Name_____

Street_____

Town and State_____

COVER SPECTRUM

Forum:

What's happening to FORUM lately? Now you do not even have a cover design. Plain paint on the front cover may be modern but it is one of the laziest and cheapest ways, intellectually, to show no brains. . . .

ELMER J. MELOCHE
Appraisal Consultant
Binghamton, N. Y.

Forum:

In reference to your use of plain covers which you started with the January 1949 issue: I would like to suggest that some consideration be given to the selection of the colors used, with the idea in mind that such colors might provide an architect with an excellent set of color samples.

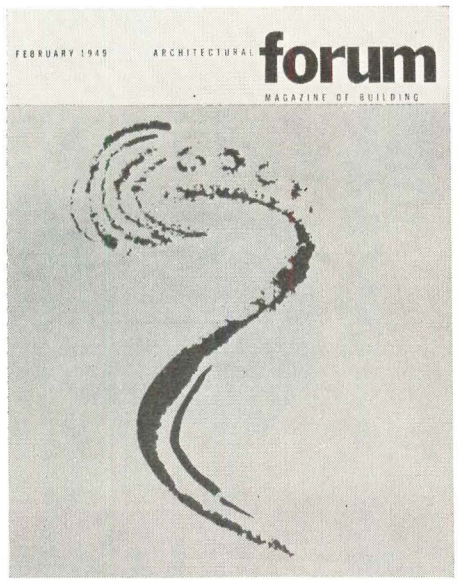
I realize that bright, raw colors on a magazine are effective from an advertising angle, but as you are not dependent upon newsstand exhibition, this should not be an important point.

It might also be interesting to note the source of the particular color used each month, which would provide additional interest.

RALPH FRANCIS FLATHER
Architect
Meredith, N. H.

● FORUM used solid color covers in January and February to give maximum impact to its change in cover typography. As in March and April, FORUM's future covers will be illustrative as well as colorful. Reader William A. Trimble commented graphically on FORUM's use of a blank cover (see below)—ED.

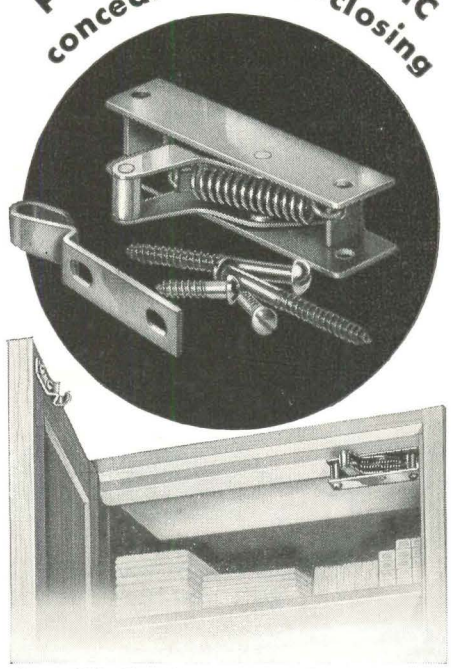
Forum:



WILLIAM A. TRIMBLE
Sante Fe, N. M.

(Continued on page 26)

POSITIVE–AUTOMATIC concealed door-closing

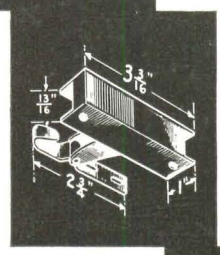


● Win-Dor Snuggers and Top-Closers work so well, are installed so easily and cost so little that you can detail them for all cabinet, cupboard and closet doors. These little automatic "hands" actually reach out, grab the door and close it without rebound. Surprising power closes even warped doors and keeps them closed. Surface installation at top, bottom or side. (For complete information see Win-Dor catalog 17B/44 in Sweet's Arch. File).

Win-Dor

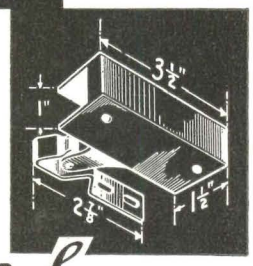


SERIES 47
This small Snugger has a four pound pull, is reversible and provides automatic closing.



SERIES 48
For closing intermediate size doors this Snugger has no equal in convenience and economy.

SERIES 45
On large doors the Top-Closer eliminates time, labor and cost of mortising latch ...only pull knob is required.



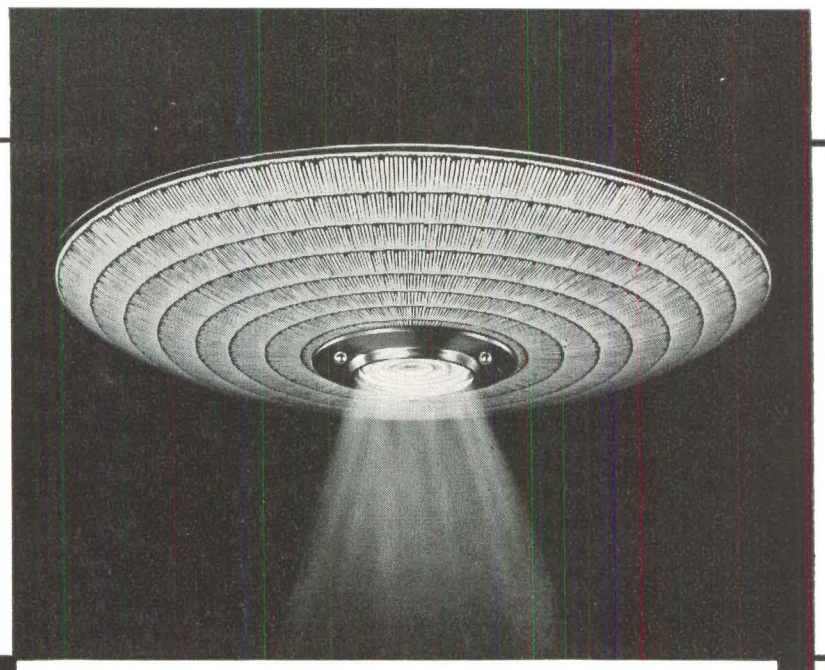
WIN-DOR Snugger
PULLS DOORS SNUG!

A PRODUCT OF
The Casement Hardware Co.
406 N. WOOD ST., DEPT. E, CHICAGO 22, ILLINOIS
Ask Your Builder's Hardware Dealer

not just a new fixture

A NEW KIND OF LIGHTING

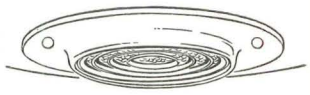
So new, so exciting in design and performance, it pioneers a new era of engineered decorative lighting.



put PACEMAKER in your plans

Pacemaker is a handsomely designed group of textured glasses by Carl Moser...dimensions are boldly over-scaled, snug-to-ceiling...creating "built-in" effects without "built-in" costs.

Pacemaker's scientifically designed built-in colouvred lens*.



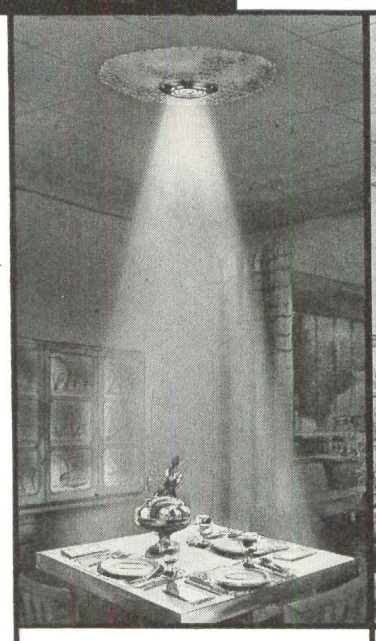
...blends into fixture contour

...spotlights center of room

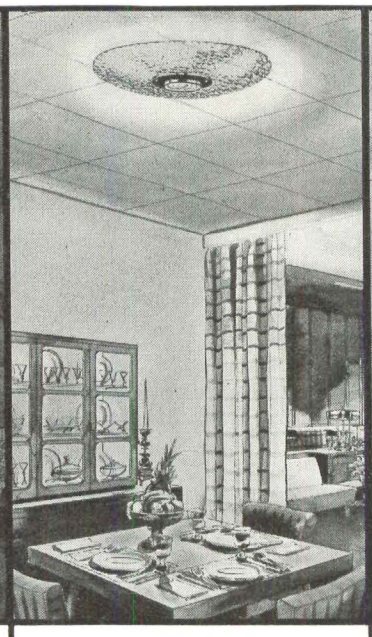
...eliminates glare

...requires no special inside ceiling construction

*Patented



SPOTLIGHTING



BACKGROUND LIGHTING



BIG OCCASION LIGHTING

"I like Pacemaker. I recommend it highly."

Julian Roth,

Emery Roth & Sons, Architects
New York City

LIGHTOLIER

Pacemaker—Perfect for homes, for offices, stores, restaurants, public buildings.

People judge by names they know. Your client knows "It's a Lightolier" are quality words that bespeak a quality house.

Lightolier, Dept. AF4, Jersey City, N. J.

Please send me complete information on the revolutionary Pacemaker series.
Also send me all the facts on Lightolier

☐ Residential Lighting ☐ Architectural Lighting
☐ Portable Lamps ☐ Decoralite

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Address .....

City.....Zone.....State.....

LETTERS



UNVEILING

Forum:

Seldom do I read anything as stirring as *The Cape Cod Cottage, Part I* (FORUM, Feb. '49). In the process of writing profuse thanks I was chilled to discern that the essay is anonymous. How can anyone human enough to write like that be supercilious enough to turn his back on the applause? However poor policy it is to wish one's life away, I do wish it were now the middle of March and I had the next number of FORUM.

WALTER F. PYNE, Engineer

Los Angeles, Calif.

• Writer Mary Mix and Researcher Sighle Kennedy hereby turn their faces to Reader Pyne's applause—ED.

SEATTLE APPRAISAL

Forum:

In your NAHB convention story (FORUM, Mar. '49) you report that a VA appraisal in Seattle was $1,000 below the mortgage insured by FHA. That is hard to believe. . . .

WILLIAM W. GORDON, Realtor

New York, N. Y.

• Don't you believe it, the correct figure is $100. Due to a printer's error a few copies were run off with the $1,000 figure—ED.

MORTGAGE MONEY

Forum:

Building a better house at lower cost must be the No. 1 objective of the entire industry in 1949, if we are to sustain our present high rate of home building. To accomplish this objective all segments of the industry must cooperate. . . .

Restriction of mortgage credit has had a terrific impact on the home building industry. It has done more than any other single factor to slow down the sales of both new and existing houses.

This is particularly true in the field of small low cost houses. At the moment it looks as though mortgage lending will continue on a very selective and conservative basis for at least the first half of 1949. Funds for real estate lending will have begun to pile up by the third quarter and will begin to search for borrowers, making ample funds available for the last half of '49. . . .

R. P. GERHOLZ, Builder

Flint, Mich.

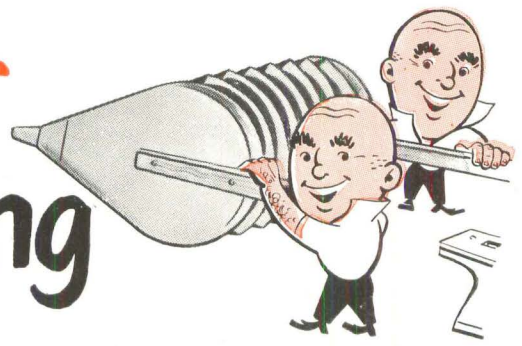
Forum:

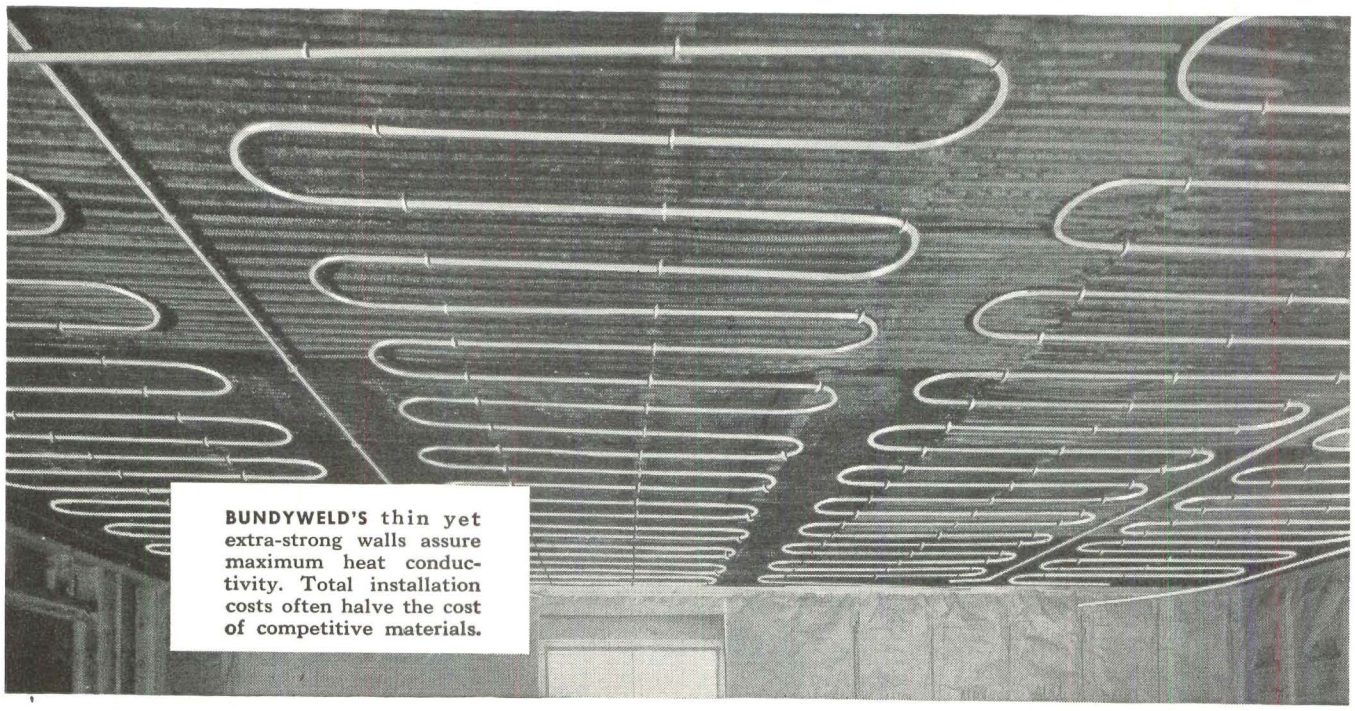
. . . May I have the benefit of the source of information from which your magazine

(Continued on page 28)



Bundyweld's hot for radiant heating





Bundyweld* Steel Tubing is really hot for radiant heating installations.

And here's why.

Bundyweld, *double-walled from a single strip of metal,* copper-coated or tinned, is a tubing with extra-strong yet thin walls for maximum heat conductivity. Ductile, it is easily bent, with a minimum outlay for bending fixtures. It saves time, money, and labor on the job.

Supplied with one end expanded, either copper-coated or tinned Bundyweld is easily soft-soldered or silver-brazed . . . reduces the number of solder joints up to 50%.

Made of steel, Bundyweld resists the denting and crushing normally encountered in softer materials when handled roughly . . . assures a uniform cross-section throughout, which facilitates balancing circuits.

Available for immediate delivery in 20-foot lengths in sizes up to 5/8" O.D. and wall thicknesses up to .049", Bundyweld is furnished in any quantity, at low cost.

Check this outstanding tubing for better radiant heating installations—write for pamphlet describing its use. *Bundy Tubing Company, Detroit 14, Michigan.*

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

* REG. U.S. PAT. OFF. ®

WHY BUNDYWELD IS BETTER TUBING



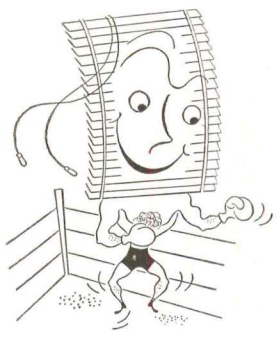
1 Bundyweld Tubing, made by a patented process, is entirely different from any other tubing. It starts as a single strip of basic metal, coated with a bonding metal.

2 This strip is continuously rolled twice laterally into tubular form. Walls of uniform thickness and concentricity are assured by close-tolerance, cold-rolled strip.

3 Next, a heating process fuses bonding metal to basic metal. Cooled, the double walls have become a strong ductile tube, free from scale, held to close dimensions.

4 Bundyweld comes in standard sizes up to 5/8" O.D., in steel (copper or tin coated), Monel or nickel. For tubing of other sizes or metals, call or write Bundy.

LETTERS



when you need a venetian blind that can take a beating, specify

Flexalum

REG. U. S. PAT. OFF.

Here's an aluminum slat that's outstanding for stamina—that won't sag... won't rust... won't weaken at route holes... won't break or crease even when bent almost double! Whenever superior quality is indicated—whether for large or small installations—leading architects all over the country specify FLEXALUM.

The Tishman Building—New York's most modern office building, is completely equipped with venetian blinds of Flexalum.



Venetian blinds of Flexalum in 14 colors custom-made by reputable manufacturers only

HUNTER DOUGLAS CORPORATION

150 Broadway, New York • Riverside, Calif.

REPLACEMENT OR A REFUND OF MONEY ★ Guaranteed by Good Housekeeping IF NOT AS ADVERTISED THEREIN

This identification on every slat!

Flexalum

reaches the opinion expressed in the *News* section that ". . . Some believed that 1948 had seen the VA Home Loan Program's last full year of operation" (FORUM, Jan. '49).

Naturally, such a turn of events would be extremely interesting to me and to my staff which has for the past four years sought to establish and to administrate the VA Home Loan Program for the benefit of 200,000 World War II veterans in the little state of South Carolina.

JOHN E. LINDER
VA Loan Guaranty Officer

Fort Jackson, S. C.

• "Source" for the comment was the flood of statements by builders and lenders in the last two months of 1948 that, as long as VA pegged the interest rate at 4 per cent, there would be few VA guaranteed home loans. At NAHB's Chicago meeting Baltimore Builder Joe Meyerhoff underlined this feeling by saying that "unless something is done to revitalize the 501 market (first mortgages partially guaranteed by VA), 501 is dead duck." He then turned to a packed house and asked how many builders were having trouble finding lenders willing to take VA loans at 4 per cent — practically every hand in the auditorium shot up.

However, a reappearance of some 4 per cent money has been recently hinted and duly reported (FORUM, Mar. '49). FORUM was in no way attempting to minimize the contributions of the VA Home Loan Program—ED.

BRUCE GOFF

Forum:

I am writing you this letter to thank you for printing the article about Bruce Goff (FORUM, March '48). Because of that issue many students besides myself have found a true school of architecture. A school that encourages the creative ways of an individual. In not many years hence the public here in America as well as elsewhere will see the fruits of Bruce Goff's labors, and the results of your article.

It is a common thing to ask a student why he or she came here to school, their answer is simple "the FORUM article." Your article has brought, and is still bringing inquiring letters and students in person to the school asking, "Can it be possible, can we really design as we wish to—our own way?" One look is all that they need (already there is enough evidence). Some are willing to start all over again.

So it is that I want to thank Bruce Goff as well as you for giving us this opportunity to find ourselves in creative architecture and lift ourselves above the stagnation of the modern eclectics.

WILLIAM SCHERMER
University of Oklahoma

Norman, Okla.

(Continued on page 30)

Preserve the

Natural Beauty of Outside Wood With

Cabot's

CREOSOTE STAINS



Architect: Ernest Gunnar Peterson

The rich, penetrating colors of Cabot's Creosote Stains bring out and preserve all the natural beauty of wood siding, shingles or clapboards. A wide variety of attractive colors, from clear, brilliant hues to weathering browns and grays, allows you to choose exactly the right stain for any house on any site.

Because Cabot's Stains contain 60% to 90% of pure creosote oil—the best wood preservative known—they repel termites and insure long years of protection from decay.

Only pure pigments are used in Cabot's Stains—colors remain fresh and true even after long exposure to the weather.

Cabot's Creosote Stains are easy to apply—will not peel or blister, even on green wood.

Write Today for free booklet "Stained Houses" and color cards.

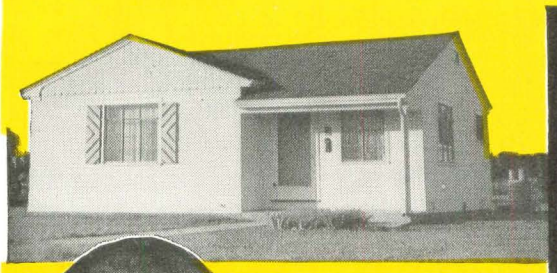
WRITE TODAY for free booklet "Stained Houses" and color cards.

Samuel Cabot, Inc.

423 OLIVER BUILDING
BOSTON 9, MASS.

"Mansion Heating" Comfort For Low-Cost Houses! - -With

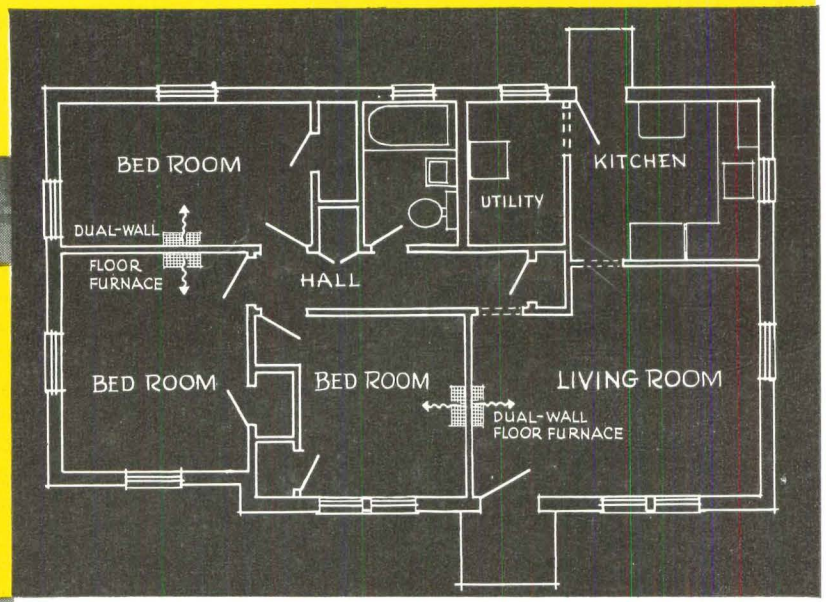
Coleman DUAL-WALL Floor Furnaces





Franklin L. Burns,
President
Burns Realty and Trust Co.,
Denver, Colorado

Mr. Burns' slogan is "Burns Better-Built Bungalows"—and Coleman Floor Furnaces help him build better!





This Fine Floor Plan Shows How Franklin Burns Uses These Coleman Installations To Uphold Quality

He uses Coleman's dual-wall models which set under the walls to heat separated rooms. Each provides powerful automatic heating for from two to five large rooms. They hold down building costs and bring real comfort—even in Colorado's rigorous mountain winter climate. As Franklin Burns says: "Coleman Dual-Wall Floor Furnaces fit in with our plans—they are a definite part of better building!"

Find Out How They Help You Uphold Quality, Hold Down Price, And Make A Profit

Now, contractors everywhere are using Coleman Floor Furnaces, to help give *better* homes for the money. You, too, can get either dual-wall or flat-register models in sizes from 25,000 to 70,000 BTU; you can have gas, oil, or LP gas burners. Meet building code and FHA requirements; give finest automatic heating with any floor plan. And you'll have no duct cost, low installation time charges. See your Coleman dealer *now* for the right Coleman Floor Furnaces for you.

Available For Gas, Oil or LP Gas, Full Depth or Shalloflow

Yes, we have floor furnaces, flat-register or dual-wall, to meet every requirement of local fuel situations and building codes! Ask your Coleman dealer, or mail us the coupon.

THE COLEMAN COMPANY, INC.
Wichita 1, Kansas

Gas, Oil or LP-Gas
DUAL-WALL
Floor Furnace

Coleman

The Coleman Company, Inc., Builders Contract Dept. AF-667, Wichita 1, Kans.

Please send me free information about your special cooperation for builders and contractors, and Floor Furnace Catalog for Builders. I am specially interested in:

☐ Gas ☐ Oil ☐ LP-Gas models

Name_____

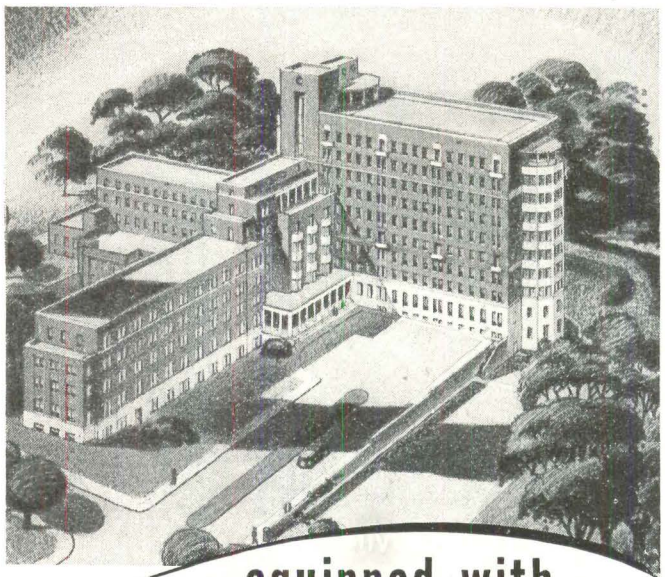
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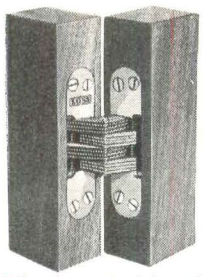
LETTERS

ST. LUKE'S HOSPITAL—BETHLEHEM, PA.

The Architects — BUCKLER, FENHAGEN, MEYER & AYERS — Baltimore, Md.



equipped with
SOSS INVISIBLE HINGES
"the hinge that hides itself"



Mr. Fenhagen, of Buckler, Fenhagen, Meyer & Ayers, has this to say about the use of SOSS Invisible Hinges in St. Luke's Hospital.

"SOSS HINGES were used on this project as an experiment with Glynn-Johnson overhead door holders on flush wood doors and heavy pressed metal door bucks. The hospital has been in use now for over a year and the installation has proven itself a success."

These sentiments are typical of architects who have used these, modern, rugged, precision built, weight-rated SOSS HINGES. The only hinge of its kind that is mortised in the door where it is completely out of sight. Smooth and quiet in operation, with no protruding hinge butt, SOSS HINGES provide the missing link for the architect who demands dependability PLUS the flush, smooth, streamlined surfaces that are so necessary to modern architecture.

There's a weight-rated SOSS HINGE for every type of installation. Whether it's a small cupboard door or a heavy entrance door, you can be assured there's a SOSS HINGE, operating on hardened steel roller bearings, ready to do that particular job.

All SOSS HINGES are manufactured from only the finest of materials. *Write for FREE Catalogue that gives complete details, blue print templates, and the many uses of this modern hinge to—*

SOSS Invisible HINGES

SOSS MANUFACTURING COMPANY
21779 HOOVER ROAD • DETROIT 13, MICHIGAN

SPECIALIZED INDUSTRY

Forum:

Manufacturers of pharmaceuticals are in a unique position. Extreme conditions must be met. In certain cases it is necessary to achieve operating room sterility and asepsis. At other times, mass production designs and techniques are a must. Between these two poles lie all the other engineering and architectural problems.

The industry, as a unit, is not large enough to attract specialized architects as are the automobile, petroleum, or brewing industries. Layout, design, renovation, new construction are not only composite applications derived from various industries but are the result of close harmonious work between a plant staff and a top flight general industrial architect.

It is at this point that FORUM plays an essential role. The plant staff that studies FORUM thoroughly is an invaluable aid to the architect. The staff can show where an autoclaving room design problem solved by hospitals has a direct application to sterilizing ampuls. The staff can point out where there is a correlation between machine tool factory design and tablet-capsule layout. In short, FORUM is a medium through which the plant staff can adapt certain phases of other industries to the pharmaceutical industry and have those ideas tailored by an architect to the specific construction or renovation. . . .

ROBERT J. KREMERS
Kremers-Urban Co

Milwaukee, Wis.

LOW COST HOUSING

PLAINTIFF—SUBSCRIBER VS EDITOR
ARCHITECTURAL FORUM MAGAZINE—DEFENDANT

COMES THE PLAINTIFF AND, FOR HIS CAUSE OF ACTION HEREIN, ON OATH STATES:

That he is a resident of a city of less than 10,000 people. That he was and is a subscriber of said FORUM magazine. That not withstanding frequent pleas directed to said defendant requesting that more space be given to housing for the $1,200 to $2,500 a year income class, that no additional results of housing research for said income range have been published. Wherefore, plaintiff prays that defendant editor be taken on a tour of houses occupied by said income group and caused to enter and view exterior and interior of at least ten of the average in appearance in a city of 10,000 people, or less. That defendant be directed to write a report on said tour for publication in said Architectural FORUM magazine in order

(Continued on page 34)



YOUNG
HEAT TRANSFER PRODUCTS

HEATING, COOLING AND AIR CONDITIONING PRODUCTS
Convectors • Unit heaters • Heating coils • Cooling coils • Air conditioning units • Evaporative condensers

AUTOMOTIVE PRODUCTS
Gas, gasoline, Diesel engine cooling radiators • Heat exchangers • Intercoolers • Oil coolers • Supercharger intercoolers

OIL FIELD, HEAVY INDUSTRIAL, MUNICIPAL & CHEMICAL PROCESS COOLING EQUIPMENT
Engine jacket water coolers • Oil coolers • Steam and natural gas condensers • Natural gas coolers • Evaporative coolers and condensers • "VAD" Vertical air discharge cooling and condensing units.

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Oil coolers • Supercharger intercoolers • Radiators • Heat exchangers • Valves • Regenerators

YOUNG RADIATOR CO.
General Offices: Dept. 609-D, Racine, Wis.
Plants at Racine, Wis. and Mattoon, Ill.
Sales & Engineering Offices in All Principal Cities

Famous Airport chooses

Famous Name in Roofing–KOPPERS!



Aerial Photograph: National Airport, Washington, D. C.
Owner: Civil Aeronautics Administration
Architect: Federal Works Administration
General Contractor—Terminal Building: John McShain
General Contractor—Hangars: Dyher (New York)
Roofing Contractor: Irvin Prickett

At the National Airport, Washington, D. C., the roofing on both the terminal building and the recently completed hangars is all Koppers. Undoubtedly, Koppers Roofing Materials were specified on these jobs because they are built to last . . . to stand up under the most severe conditions.

More than 20 years' cost-free service isn't unusual for Koppers Roofs. Built-up with Koppers superior coal tar pitch and approved tarred felt, they have unusual tensile strength. They resist the elements. They resist prolonged contact with water. And if small breaks occur, these roofs are "self-sealing."

Make certain that projects under your supervision have the finest in roofing . . . specify KOPPERS. Complete specifications are contained in Sweet's Architectural File.

KOPPERS COMPANY, INC. **Pittsburgh 19, Pa.**

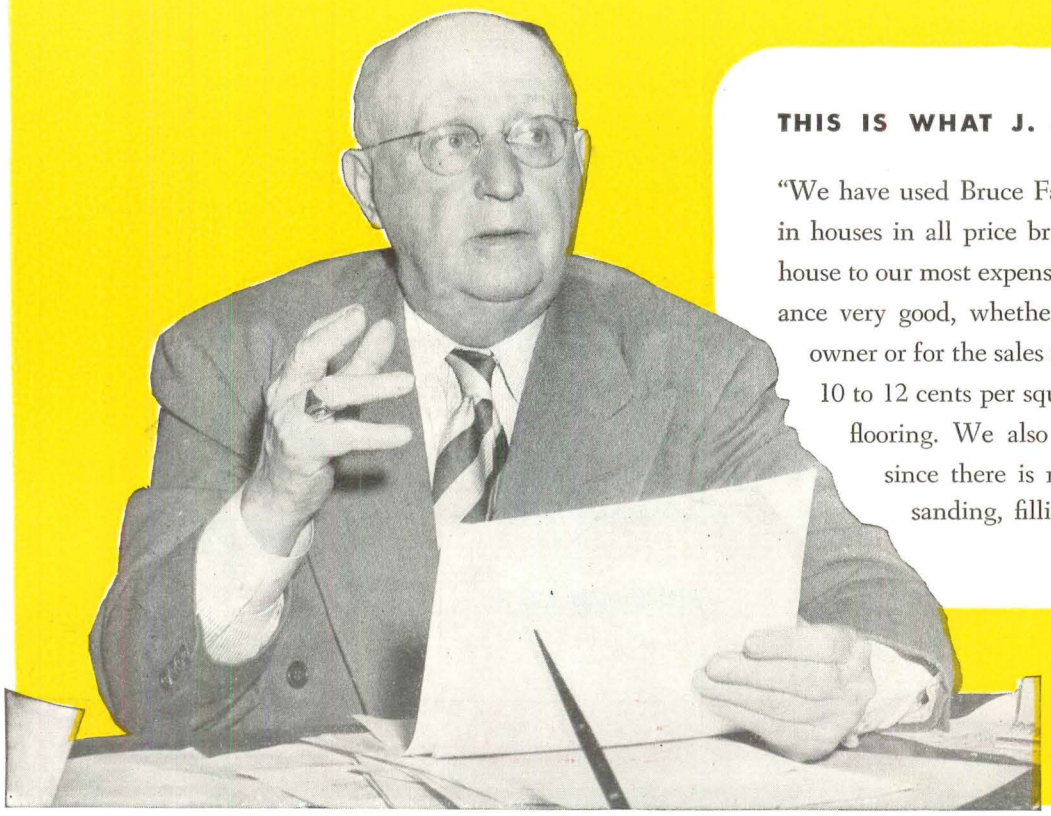
KOPPERS

SPECIFY KOPPERS FOR LONG-LIFE ROOFING





Nichols of Kansas City saves 5 working days and cuts costs $100 per house by using Bruce Finished Floors

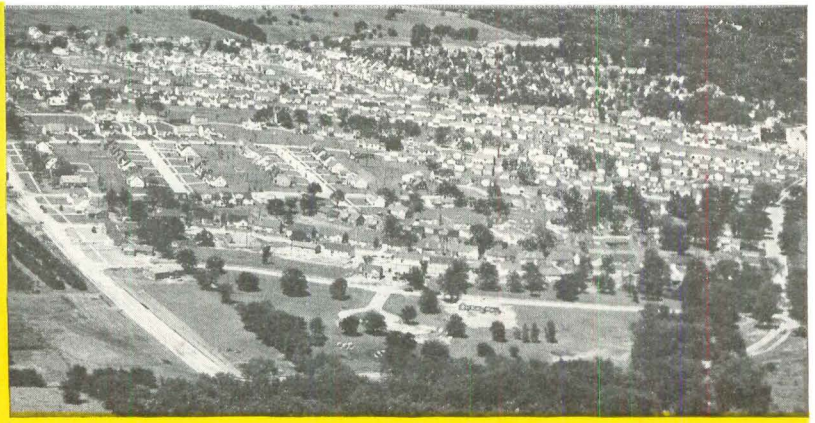


THIS IS WHAT J. C. NICHOLS CO. SAYS

"We have used Bruce Factory-Finished Strip Flooring in houses in all price brackets from our lowest priced house to our most expensive. We have found its acceptance very good, whether the house was built for an owner or for the sales market. Today the cost is from 10 to 12 cents per square foot less than job-finished flooring. We also find a great saving in time, since there is no delay in other work while sanding, filling and finishing on the job."

J. C. Nichols, Chairman of Board, J. C. Nichols Co., world-famous developers of beautiful Country Club District of Kansas City, Missouri.





Nichols' famous Country Club District in Kansas City has been called "America's Finest Residential Area." It covers 5,000 acres, includes thousands of homes, ranging from the small homes shown above to large estates.

BRUCE

Bruce Finished Floors Have Many Advantages:

No time-consuming sanding and finishing on the job

No interference with work of other trades

Factory finish costs less than on-the-job finish

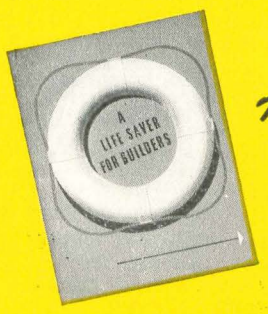
It's the finest finish ever given hardwood floors

Owners praise beauty, durability, easy upkeep

BRUCE *Finished* FLOORS

With the Wonderful New 1949 Finish

PRODUCT OF E. L. BRUCE CO., MEMPHIS, TENN.
World's Largest Maker of Hardwood Floors

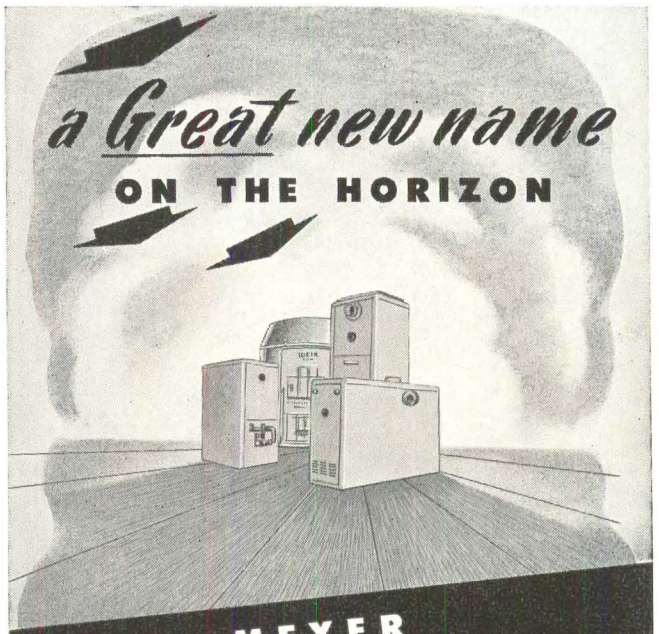


New Booklet . . .

"A Life Saver for Builders."
For free copy, write
E. L. Bruce Co.,
Memphis 1, Tenn.

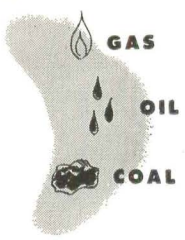


LETTERS

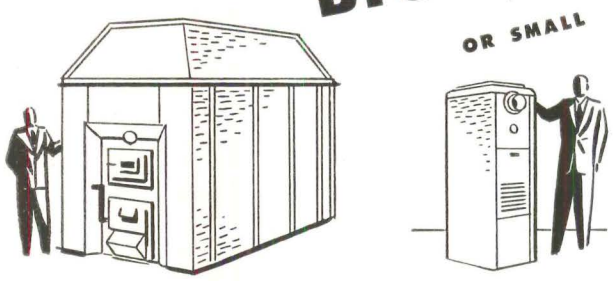


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MARVELLAIRE FURNACES AND AIR CONDITIONERS FOR GAS • OIL • COAL
GENERAL OFFICES: PEORIA, ILL. • FACTORIES: PEORIA AND PERU, ILL.

that a portion of said defendant's talents be passed on to subscribers who are interested in seeing housing relief for said Americans with said rent paying ability.

Further subscriber sayeth not.

HARRY W. BRYAN
Bryan Abstract Co.

Van Buren, Ark.

• Behind Reader Bryan's legal terminology is posed the eternal enigma of American housing — How to house those in the lowest income group? FORUM, yet to hear the complete answer, wonders if any of its readers has—ED.

INFORMATION PLEASE

Forum:

I have been getting the FORUM for over ten years now, but it seems that every time I get an issue along comes half a dozen letters (fill out this, fill out that, please send in) and by the time that I have done all this I have not time to read FORUM. What do you do with all the stuff I fill out, throw it away or has the boss a bunch of researchers (in the family) that he has to keep on the job? I think the only question that has not been asked of me is 'do I drink?' If FORUM wants to know this, it is none of their business. I do enjoy FORUM very much and get a lot of good ideas from it when I have time to study it and not fill out forms for some office boy to file in file No. 13.

Please, once and for all, are there any more forms I have to fill out? If not, how about sending me just one issue without 'Information Please' attached. I can get that on my radio. (Don't send a form, the radio is an 11 tube RCA).

Hoping this is the answer that answers all questions. I do like your magazine very much.

MUNRO J. HORRE

Key West, Fla.

P.S. Do you have your own paper mill?

Forum:

I have received five of the enclosed forms (occupational questionnaires) during the past few months. I filled out one which was sent to you some while ago. Since the first one, I have ignored the others. I have filled out the enclosed fifth one, however, because of the heart-rending letter which accompanied it. . . .

JAY M. HOWETT

Washington, D. C.

• FORUM is not being nosey when it sends out questionnaires. Audit Bureau of Circulations requires that all readers be classified by occupation. As FORUM is read by architects, builders, engineers, lenders, realtors, and other building professionals, this occupational classification is a pinpoint operation — used only for confidential statistical purposes—ED.

(Continued on page 38)



New, Improved Sani-Dri

CUTS DRYING TIME 25% OR MORE!

Now . . . a new, improved heating element makes Sani-Dri the fastest drying machine of its kind! This modern, sanitary method of hand and face drying now takes 25% *less time!* For new installations or modernizations of old washrooms, there's nothing like the new faster-drying Sani-Dri. Write for the latest facts today!

SAVES UP TO 85% OF WASHROOM COSTS!

You eliminate towels completely with the Sani-Dri. No unsanitary litter . . . no fire hazard . . . no paper clogged soil pipes — Sani-Dri provides completely *automatic* drying service 24 hours a day, year after year with little or no maintenance! Sani-Dri *pays for itself out of savings!*



GET THE LATEST FACTS!
New brochure 1082 shows both built-in wall and pedestal models of new faster-drying Sani-Dri electric hand and face dryer. Write today!
Distributors in Principal Cities

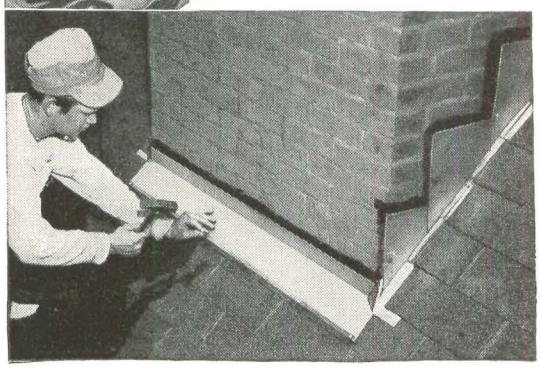
THE CHICAGO HARDWARE FOUNDRY CO.
"Dependable Since 1897"
9449 Commonwealth Avenue
NORTH CHICAGO, ILL.

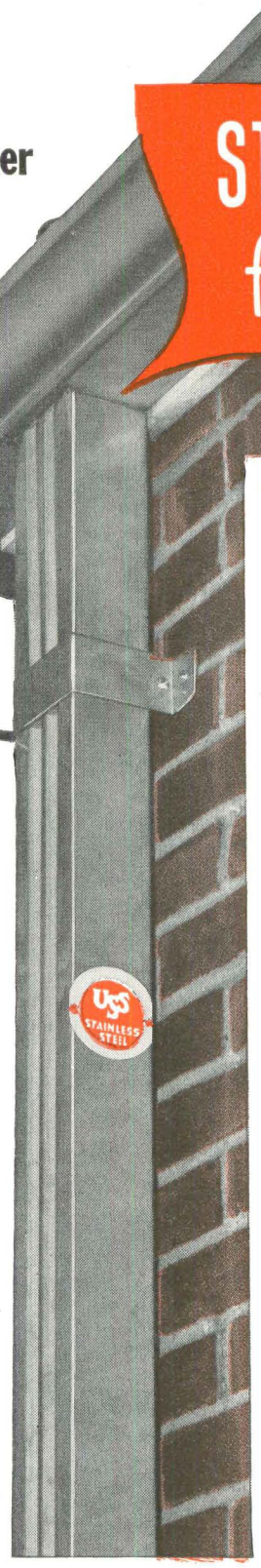
No higher in first cost . . .

. . . no cost thereafter

STAINLESS STEEL for roof drainage







Now at last you can give your clients what they've always wanted—roof drainage systems that they can put up and forget.

For well-made Stainless Steel gutters, downspouts, conductor pipes and flashing are *really* permanent. They last as long as the building stands. They won't rust or corrode. They will not discolor adjacent areas. They never need painting. They end repair and maintenance worries. With Stainless, *first cost is final cost!*

Despite its superior qualities
U·S·S Stainless construction costs no more

It's a fact. Actually the *material* cost of U·S·S Stainless Steel for drainage may even be slightly lower than that of other metals. That's because Stainless Steel weighs about 10% less per square foot than the non-ferrous material used for quality jobs in the past. This means that, gage for gage, you get 10% more useable material with Stainless.

Cost is further reduced because U·S·S Stainless Steel, when formed, has twice the strength of most other metals used for roofing purposes. Thus U·S·S Stainless can be used with perfect safety in *lighter* gages, not only for residential use, but also for commercial and industrial applications that call for heavy thickness in other metals. Specify Stainless Steel for roof drainage—and you give your clients the best—by far the cheapest in the long run.

Fabrication is easy--and U·S·S Stainless is available

Fabrication of these comparatively simple forms presents no special problems. The usual sheet metal shop equipment is adequate and practices are similar. The additional stiffness of Stainless causes little difficulty because gages used are usually thinner than those customary in other materials. For most applications, 26 gage is recommended.

U·S·S Stainless Steel sheet and strip are readily available now. The proper grade—U·S·S 18-8, Type 302—is stocked by most warehouse suppliers and by United States Steel Subsidiaries. If you want further information, write to Carnegie-Illinois Steel Corp., 2059 Carnegie Bldg., Pittsburgh 30, Pa. for our catalog "Roofing Products of Stainless Steel," now in preparation, and we'll put you on the list for an early mailing.

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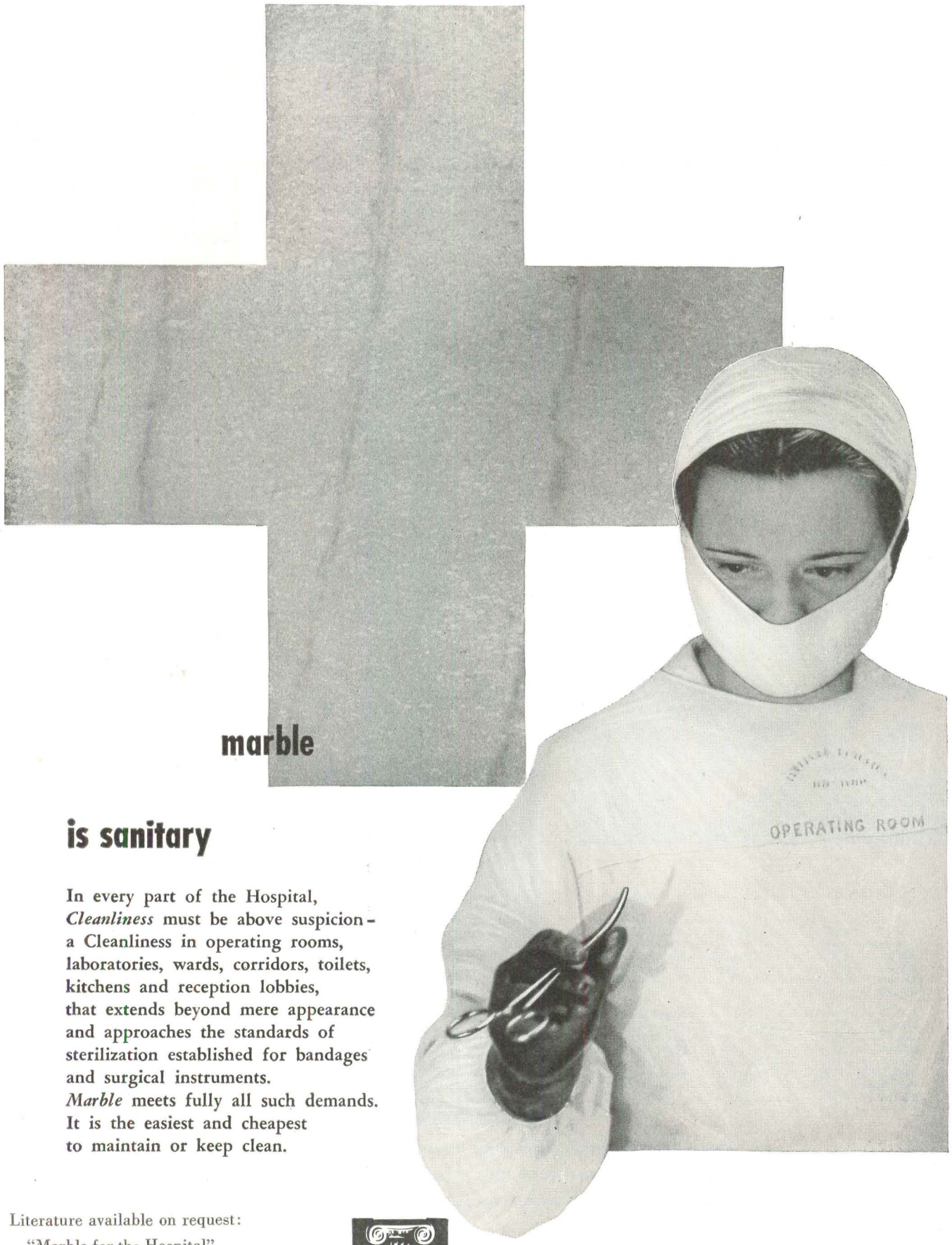
USS

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

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UNITED STATES STEEL



marble

is sanitary

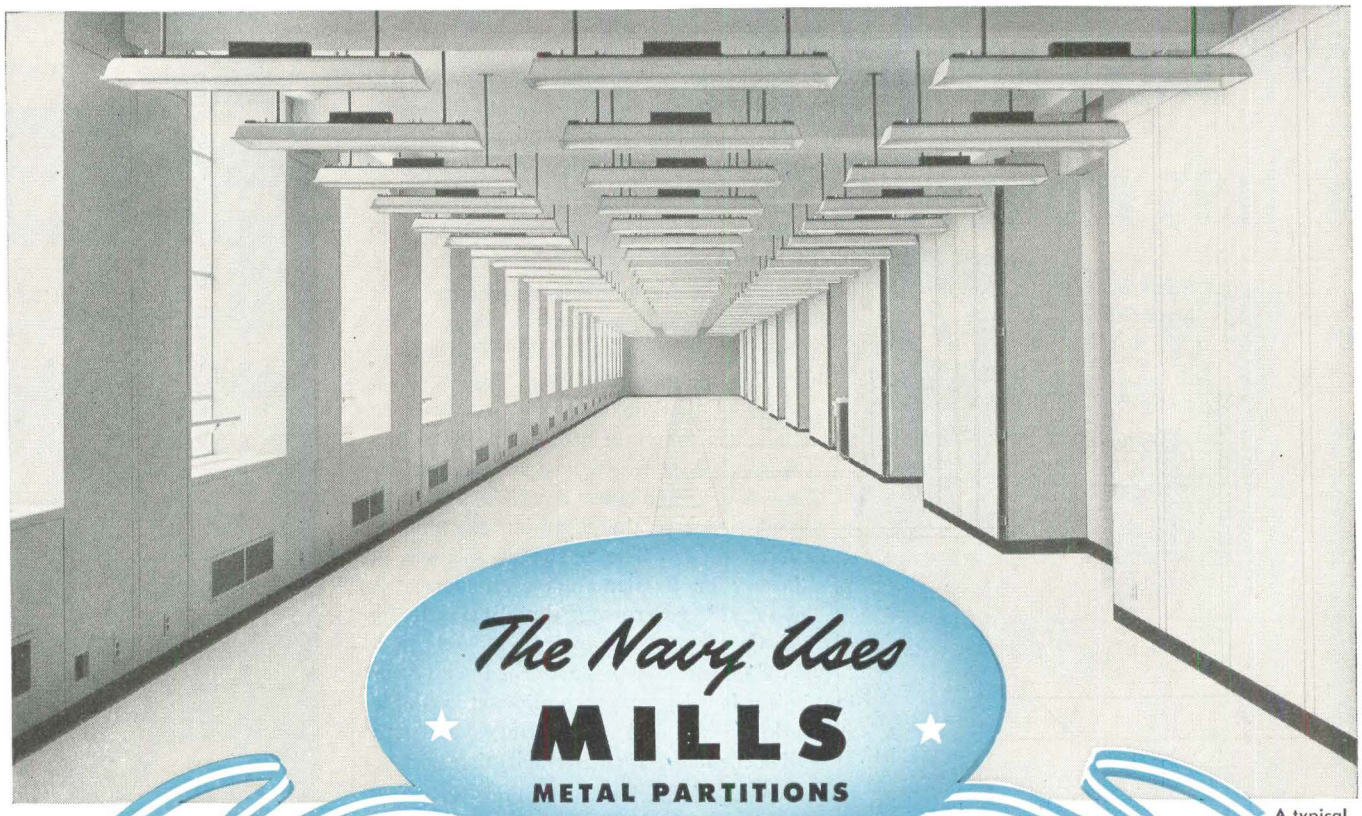
In every part of the Hospital, *Cleanliness* must be above suspicion – a Cleanliness in operating rooms, laboratories, wards, corridors, toilets, kitchens and reception lobbies, that extends beyond mere appearance and approaches the standards of sterilization established for bandages and surgical instruments. *Marble* meets fully all such demands. It is the easiest and cheapest to maintain or keep clean.

Literature available on request:
"Marble for the Hospital"
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The Navy Uses

MILLS

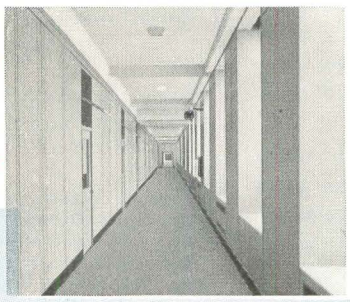
METAL PARTITIONS

A typical laboratory

. . . more than four miles of them . . . in the great new UNITED STATES NAVAL ORDNANCE LABORATORY

Architects: Eggers & Higgins, New York

Builders: Charles H. Tompkins Co., Washington



A typical corridor

The U. S. Naval Ordnance Laboratory at White Oak, Maryland is one of the most modern and best equipped research and development establishments in the world. Comprising nearly 100 buildings on a 938 acre tract, it employs 2,300 people working in nearly every field of physical science and engineering.

Meeting the Navy's most exacting specifications, Mills standard and custom built partitions and wall linings and specially fabricated panels transform building interiors into offices, general laboratories, engineering and mechanical testing laboratories and many other enclosures. As White Oak's space needs change, these Mills partitions will be rearranged to fit the new requirements—quickly, easily, economically.

THIS IS one of the world's largest installations of movable steel partitions.

But *quality* rather than size is its most significant feature . . . quality that is characteristic of Mills Metal Partitions. These movable walls incorporate exclusive features . . . such as all welded construction of individual partition units and sound-deadening treatment of their surfaces . . . features that make Mills the demonstrably superior system for flexible division of floor space.

Insulated and sound proofed to provide ideal working conditions, Mills Metal Partitions are permanent in appearance and function. Yet they can be quickly dismantled and rearranged to meet changes in space requirements. In many instances the change can be accomplished over night or during a weekend.

Simple and refined in architectural design they are available in a wide variety of styles, durable finishes and attractive colors to meet specific requirements for buildings of every type.

Mills Metal Partitions can solve your space division problems. See the new 44 page Mills Catalog in Sweet's Architectural File for 1949 or write for your own easy-to-handle individual copy. Just ask for Mills Catalog 49-0.



MILLS METAL PARTITIONS

THE MILLS COMPANY

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LETTERS

YOU can build

MORE SALES APPEAL

in your homes

FOR LESS MONEY

with the * **FASCO AUTOMATIC KITCHEN VENTILATOR**



● Profit from the big sales appeal of clean, cool, comfortable kitchens . . . and still have money left in your kitchen ventilator budget. Install FASCO Automatic Kitchen Ventilators . . . the ventilator with all the top quality features . . . at an amazing low price.

Changes air in average kitchen every three minutes! Quickly, quietly whisks out heat, odors, grease and dust . . . without drafts. Attractive . . . easy to clean. Just one control operates both outside door and fan.

Models available for all size kitchens, all wall thicknesses. *WRITE!* Literature will be sent promptly.

***Standard Equipment in 9000 LEVITT HOMES!**
and in many other developments by America's leading builders

FASCO INDUSTRIES, INC.

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ROCHESTER 2, N. Y.

NEUTRA'S ANSWER

Forum:

My attention has been called to an article in *L'Architecture Francaise* where my work is taken as an example of an architect turning from "International" to regional or localized character . . . many people seem to talk and worry about similar subjects, in Europe as well as here.

As I well recall, I have never used the slogan "International Architecture." Although I am happy to think of myself as avoiding narrow, provincial views and am convinced that on this now so shrunken globe more than ever before a cosmopolitan attitude is best for all concerned, I do believe that architecture was in a way more international in the Victorian era than it can be today. The tenement sections of Glasgow or Breslen and, even more, the "classical" government buildings of the 19th Century in Singapore, Bucharest, and Rio de Janeiro were patterned with very similar facades, although climate, available workmanship and use itself would have called for interesting diversification.

We, the following generation, have frequently attacked this pernicious indifference to all determining factors which many old fashioned architectural schools permitted to grow and prevail among their students.

I have never held any other views than these and that, to serve the physiology of man, we must study with care the surroundings which we like to modify only to his well-being and use. I have written an entire book on the subject and call it *Survival Through Design.*

Especially the great diversification of the California landscape, climate, and other circumstances have for long fascinated me to exercise a corresponding diversification in design. For example, I have erected redwood structures where the fire protection services of a city permitted such inexpensive carpentry construction, non-combustible metal and reinforced concrete frames. where a distant and detached site made the owner feel apprehensive of forest fires, so typical of the California mountains in the summer.

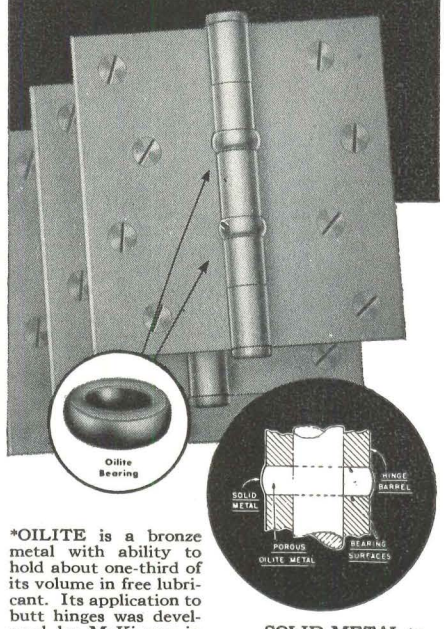
Hillsides and level grounds inspired me to very different solutions. In California, new tracts of land which are introduced to development are frequently settled by the developers with esthetic "restrictions." Also such local limitations have induced me to experiment, for example, with pitched and sloping roofs, which are not indigenous in this area, and even the most ancient roofing materials of other countries, occasionally imposed on my work, have caused and have

(Continued on page 42)



hour after hour
day and night

BUSY DOORS NEED McKINNEY OILITE BUTT HINGES



*OILITE is a bronze metal with ability to hold about one-third of its volume in free lubricant. Its application to butt hinges was developed by McKinney in 1938, after exhaustive tests and research.

SOLID METAL to protect exposed surface and drive lubricant to bearing surfaces.

Doors that are subjected to constant opening and shutting need the continuous self-lubrication provided by McKinney OILITE Butt Hinges.

They swing easily on a slick, smooth film of lubricant automatically supplied by the bearing itself*—and only to the bearing surfaces. Quiet operating, trouble-free, and wear resisting, McKinney OILITE Butt Hinges assure extra long door life and service. They come in all sizes and finishes . . . all sizes are equipped with two or more OILITE bearings to carry the vertical load.

Ideal for doors exposed to exterior weather conditions or moisture because McKinney OILITE bearings will not rust.

Specify McKinney OILITE Butt Hinges for office buildings, schools, hotels, hospitals and homes.

Details of McKinney Oilite Butt Hinges are shown in Section 17-b-8 of Sweet's Architectural File.

McKinney Butt Hinges with OILITE bearings have been approved for use on Veterans Administration Hospitals and Buildings by the Veterans Administration and by The Corps of Engineers, U. S. Army.

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BE Wiser THAN YOUR COMPETITORS



...of course, it's Electric!

Some builders are wiser than others. They have the knack of attracting customers. One way they do that is to install the kind of cooking equipment more people want—modern Electric Ranges. The trend to Electric Cooking is proved by the fact that another million American families switched to it last year. Conservative estimates indicate that the same thing will happen again this year.

So build houses that are modern today and will stay modern for years to come. During construction, include wiring for an Electric Range, leading to a range outlet in the kitchen. An Electric Range, like electricity itself, is now a "must" in every modern home!

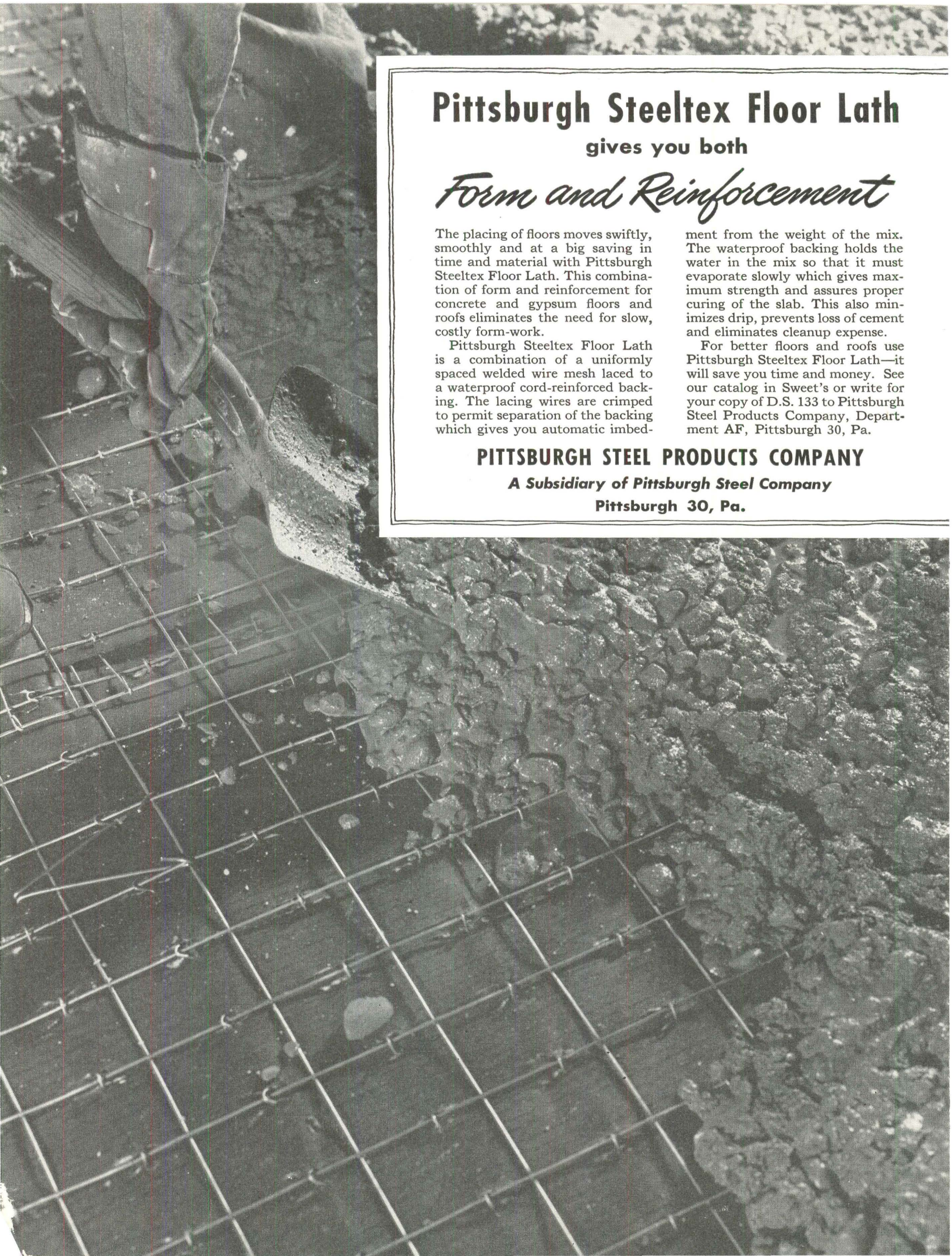
ELECTRIC RANGE SECTION, National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N. Y.

ADMIRAL • COOLERATOR • CROSLEY • ESTATE HEATROLA • FRIGIDAIRE • GENERAL ELECTRIC • GIBSON • HOTPOINT
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Follow the trend... **wire** YOUR HOUSES **FOR ELECTRIC RANGES**



Another 1,000,000 American families switched to Electric Cooking last year



Pittsburgh Steeltex Floor Lath

gives you both

Form and Reinforcement

The placing of floors moves swiftly, smoothly and at a big saving in time and material with Pittsburgh Steeltex Floor Lath. This combination of form and reinforcement for concrete and gypsum floors and roofs eliminates the need for slow, costly form-work.

Pittsburgh Steeltex Floor Lath is a combination of a uniformly spaced welded wire mesh laced to a waterproof cord-reinforced backing. The lacing wires are crimped to permit separation of the backing which gives you automatic imbedment from the weight of the mix. The waterproof backing holds the water in the mix so that it must evaporate slowly which gives maximum strength and assures proper curing of the slab. This also minimizes drip, prevents loss of cement and eliminates cleanup expense.

For better floors and roofs use Pittsburgh Steeltex Floor Lath—it will save you time and money. See our catalog in Sweet's or write for your copy of D.S. 133 to Pittsburgh Steel Products Company, Department AF, Pittsburgh 30, Pa.

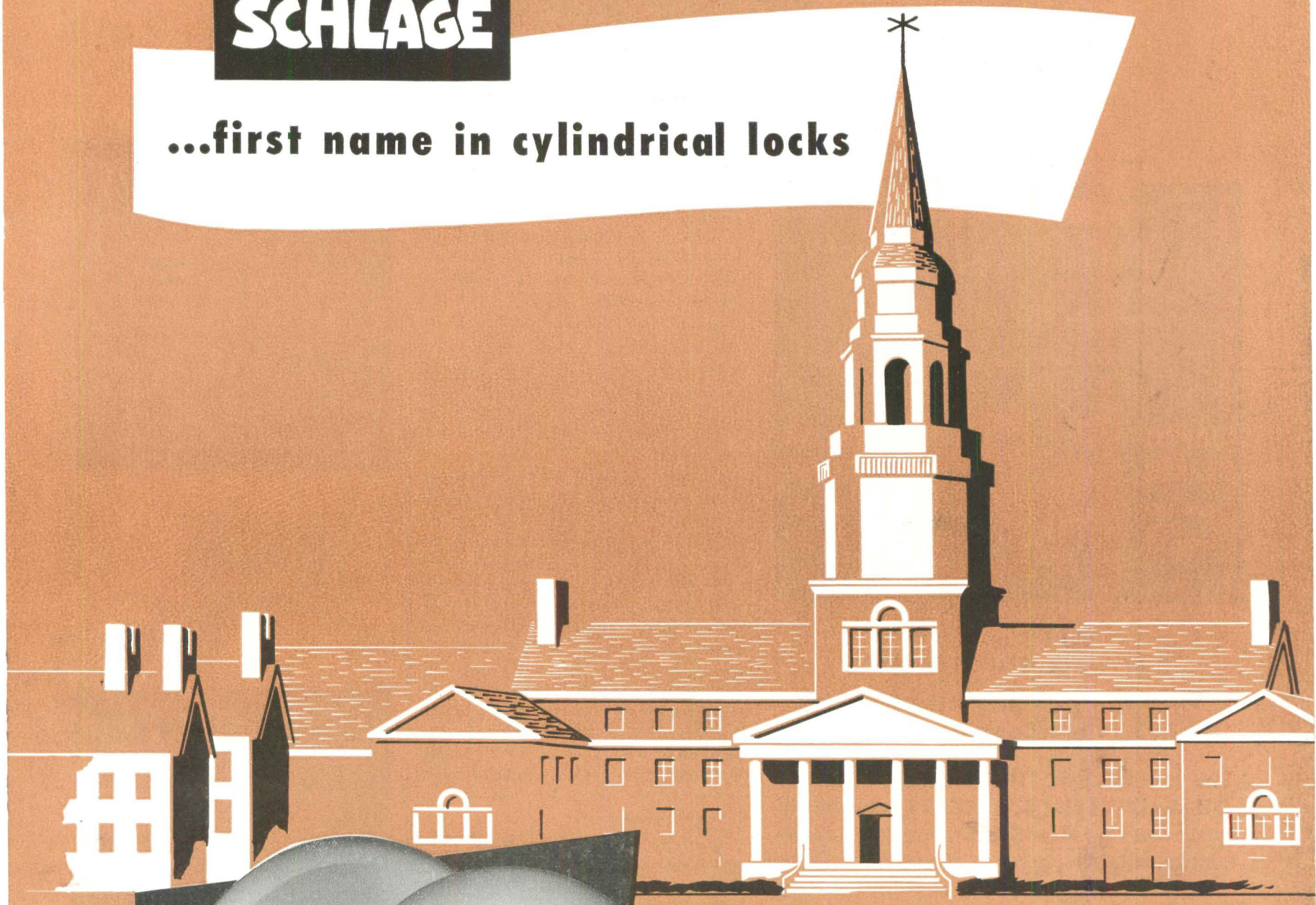
PITTSBURGH STEEL PRODUCTS COMPANY

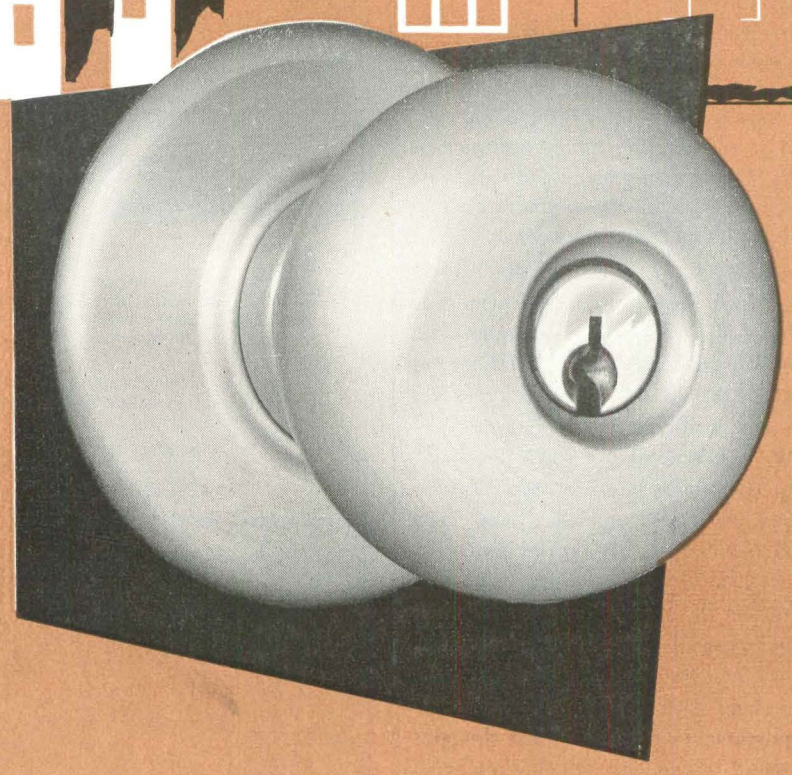
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SCHLAGE

...first name in cylindrical locks





Maine's Colby College at Waterville

a Schlage installation of heavy-duty cylindrical locks.

Architect: Jens Frederick Larson

Plymouth Design illustrated at left was used in this classic New England College.

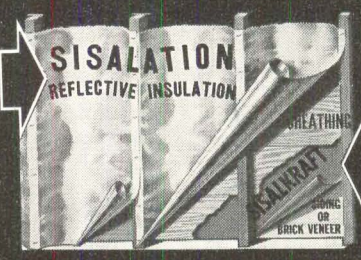
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LOCK COMPANY
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LETTERS

Specify Both

SISALATION & SISALKRAFT

for insulated DRY WALL *construction at very low cost*



This modern insulated

DRY WALL CONSTRUCTION

meets FHA Vapor-Barrier Requirements

(Class A, Federal Specifications UU-P-147)

This new insulated DRY WALL construction (SISALATION plus SISALKRAFT) combines insulation and vapor-barrier advantages at very low cost . . . helps stop passage of harmful moisture into walls! SISALATION, bowed in between studs, provides TWO insulating air spaces, and its reflective surface helps keep homes warmer in winter, cooler in summer. Heavily reinforced by cross-laid sisal fibres, tough and strong, SISALATION and SISALKRAFT remain in place, permanently and effectively, for the life of the building. Here is quality construction with true economy!

The SISALKRAFT Co., 205 W. Wacker Dr., Chicago 6, Ill.
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had to find their solution fitting locally determined rules. In fact, the more contemporary effort convinced an ever larger group of consumers and of my clients to abandon the imitation of past 'styles," the more variegated became the problems which were posed to me and the modern architect in general.

Of all the Californian landscapes, the arid mountain valleys have interested and attracted me most as posing an original problem. And also the people who chose to live in the desert are a group by themselves. Their attitude has hardly historical precedent.

The deserts, like the arctics or the tropical jungles, are the last frontiers of architecture, the last stretches of area of the planet not yet regularly inhabited. Building civilization and comfort warranted by industrial technology and transportation permits the modern architect to invade these remote reservations and open them up for modern man to live in. It may be several hundred employees of an oil company prospecting and exploiting the substratas of hot Saudi Arabia and desiccated Northern Peru, or a vacationist who has discovered the beauties and health factors of the desert, provided he can find comfort where previous generations saw only a devil's playground.

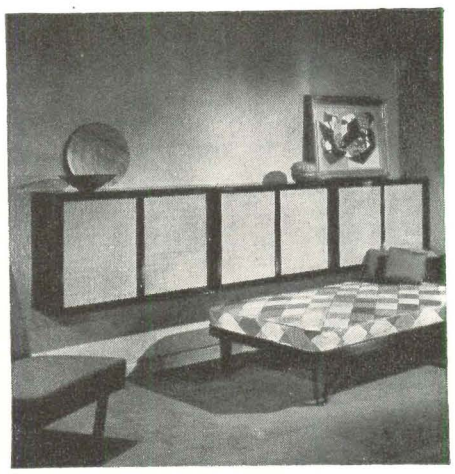
Architecture of today is not merely a replacement job of the old and worn out amidst long established settlements, but it is also an expansion job into unconquered fields, into places never before occupied or enjoyed. Young men who now are students may yet have to deal with moon craters and worry about them as building sites.

My attempts on behalf of the desert dwelling have been rather uniform ever since I saw this country, not changing with fashion. The character of a building not "grown" in the desert—where really nothing can root, and certainly no house—is by necessity the character of a fabricated structure imported to the site in most of its constituent parts and materials. Still, in a human spirit it must not be foreign to the spot it will occupy. It must fuse with this spot, cherish the genius loci. It shall, like a pool of water also piped there from afar, reflect the moods of the landscape and the weather. Its glass or aluminum can dynamically mirror the blueness of the sky, the whiteness of the moving clouds, the changing splendor of the late afternoon sun and, last but not least, the sparkle of starry nights over the light sand dunes.

RICHARD J. NEUTRA, Architect

Los Angeles, Calif.

(Continued on page 46)



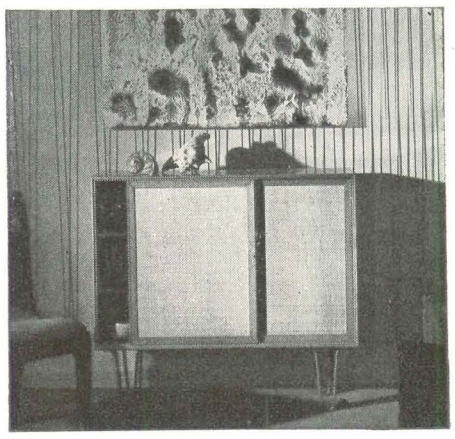
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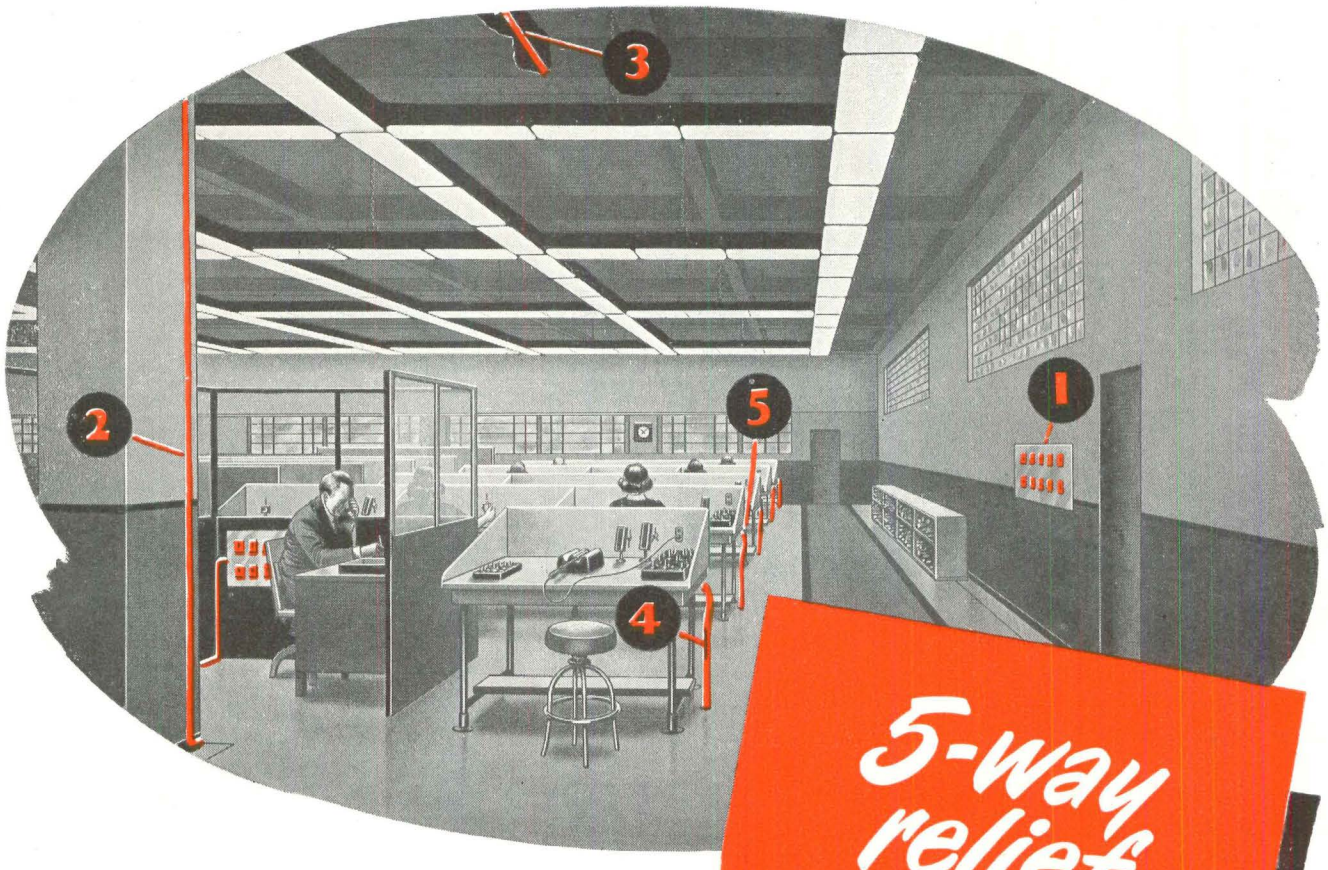
Modern cabinet units which may be attached to the wall with toggle bolts or supported on 11-ply laminated wood legs. Sliding doors covered with pandamus cloth conceal two adjustable plate glass shelves. Dimensions: W. 40" D. 12½" H. 26". On legs, H. 36".

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3. AVA POWER CABLE is a natural for bringing in power to a high-level lighting installation like this. And, when you think of power cables, think of General Electric Deltabeston* cables. They'll save you maintenance grief, because they're built to beat ambient and operating heat. They can help you save space, too, because they are designed to carry more current than ordinary cables of the same size.

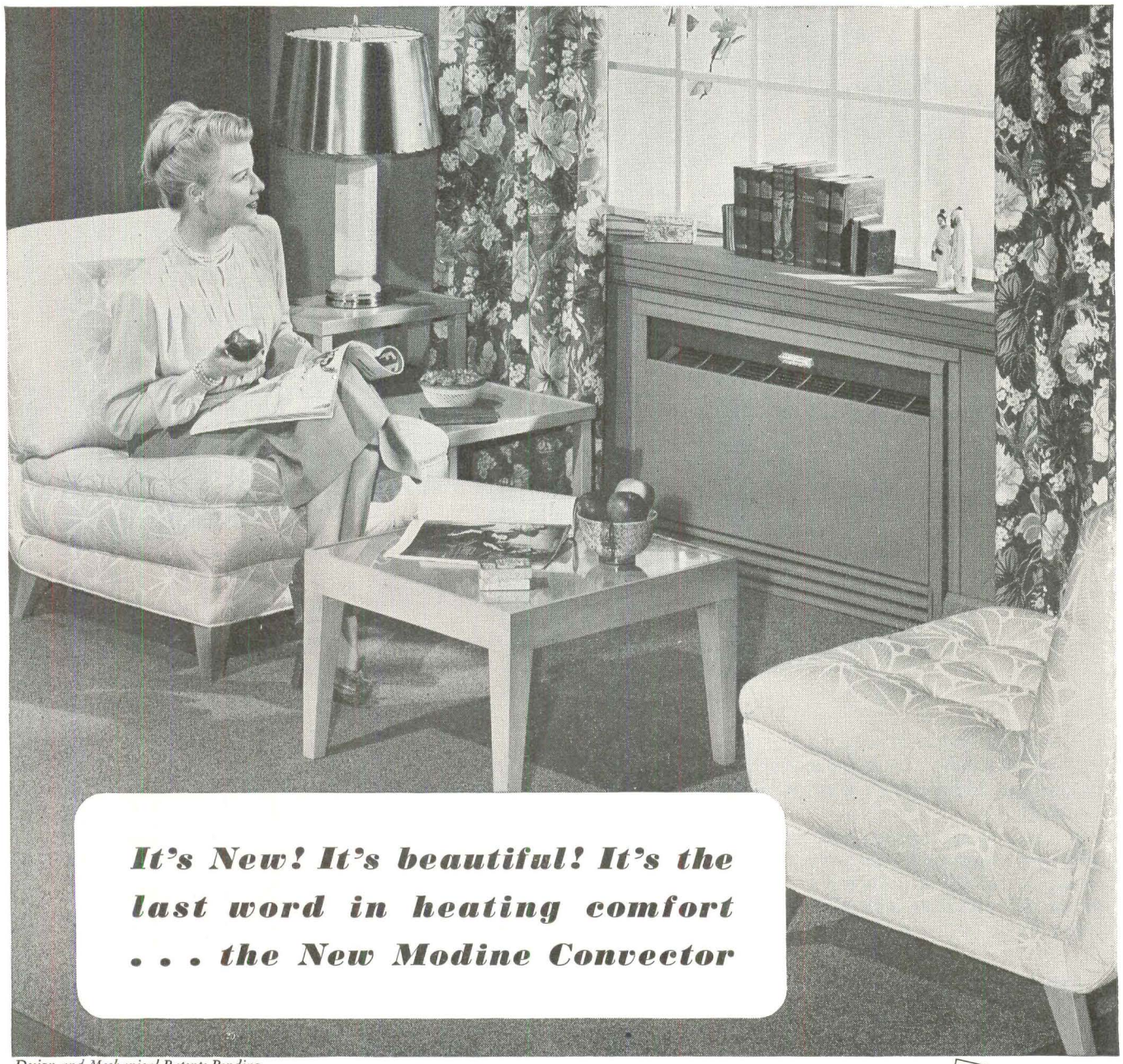
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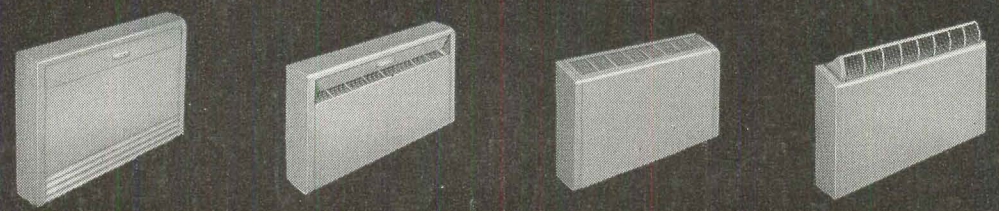
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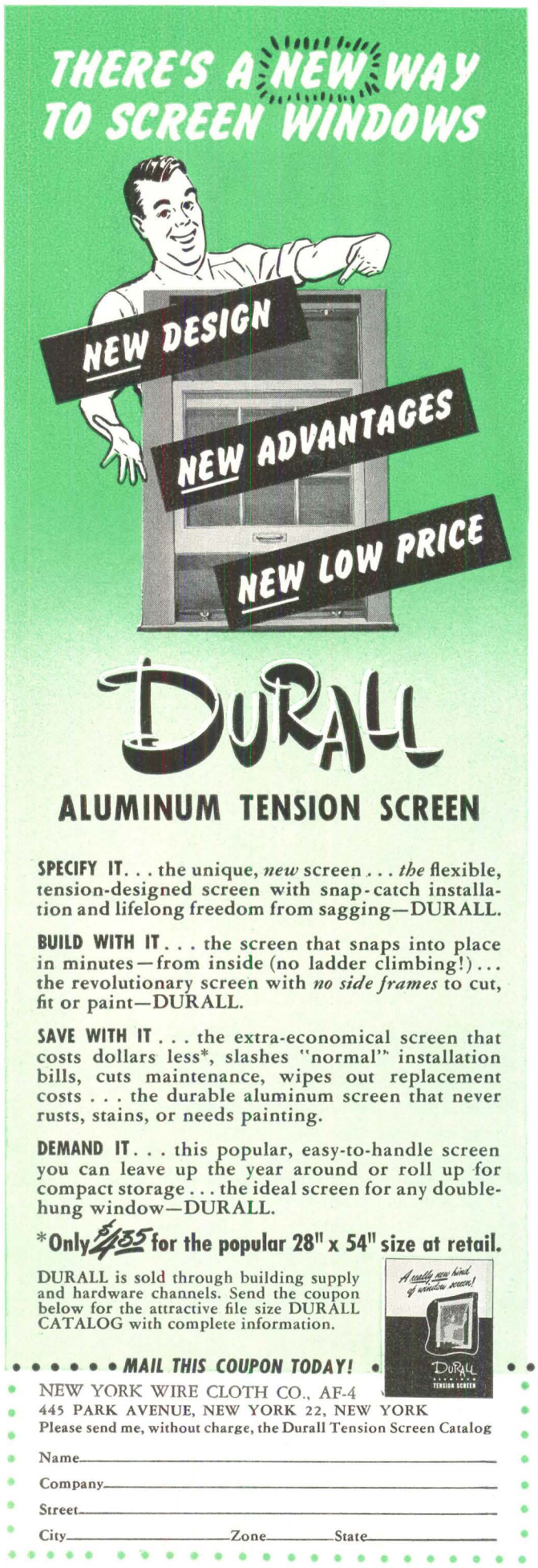
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LETTERS



NO NEW WRINKLE

Forum:

I have received numerous telephone calls from builders questioning the exact meaning of the following remarks under a Washington News heading (FORUM, Dec. '48):

". . . A veteran can still buy a house beyond the loan limit by putting up the difference between the limit and the purchase price. But as every house builder knows, few GI houses are sold in that manner."

The builders that have called me have all jumped to the conclusion that there is some new wrinkle in the Veterans Administration setup which will permit a veteran to pay more than the amount of the GI appraisal.

Frankly, my interpretation has been that your comments merely refer to the fact that the veteran could pay in cash the difference between the loan limit and the amount of the GI appraisal in view of the fact that not many lending institutions are today interested in 100 per cent GI loans. . . .

EARLE VINCENT JOHNSON, Realtor

Lincoln, Neb.

• Frankly, Reader Johnson's interpretation is correct—ED.

EUREKA

Forum:

We refer to your review of the new publication *Furniture Forum* (FORUM, Feb. '49). Speaking about the lamp section, the reviewer makes the following statement: "Besides the well-known line by Kurt Versen, the work of only two *new designers* shows up: Magnusson Grossman's aluminum-cupped lamps hung from steel and brass tubes and Walter von Nessen's glass fiber-shaded (sic) floor and desk lamps."

Where has the reviewer been all these years? Certainly not in the file room of FORUM. If he had just taken a peek at back issues, he would have found one or more Nessen lamps in almost every issue of the last 10 or 12 years. And what is more, the lamps he would have seen would have been the very same ones that were shown in *Furniture Forum*. . . . All this time we have thought that we were quite well known, and along comes the FORUM and discovers us. Happy day. We thank you.

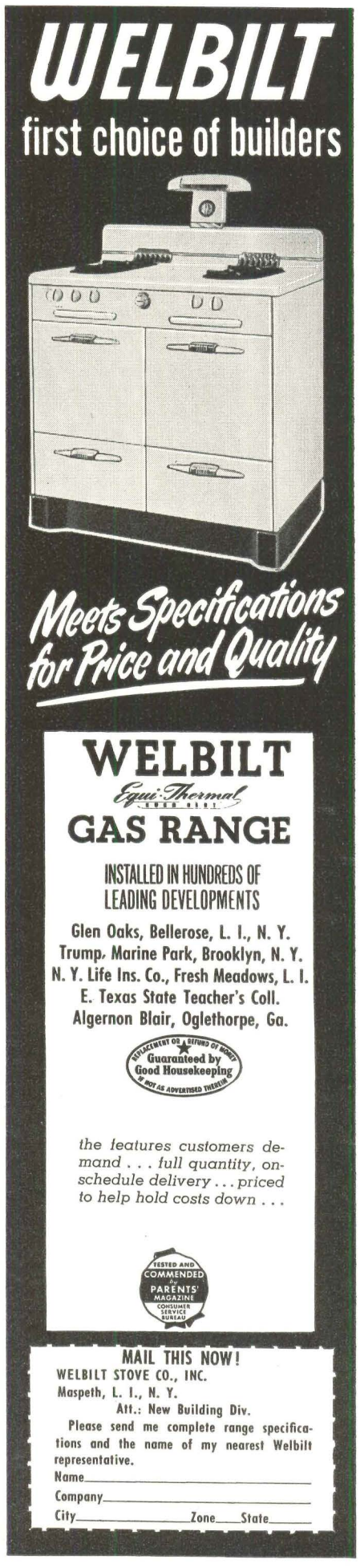
MARGARETA VON NESSEN

NESSEN STUDIOS, INC.

New York, N. Y.

• Our red-faced reviewer is serving penalty time in FORUM's file room—ED.

(Continued on page 50)





special features of

New Type 110 Gas-Fired Winter Air-Conditioner

1. **Beautiful Cabinet** — available in handsome crinkle green, or gleaming white to match kitchen and laundry appliances. Controls are enclosed.

2. **Compact Size**—60,000 and 80,000 Btu input capacities in compact, deluxe hi-boy cabinet.

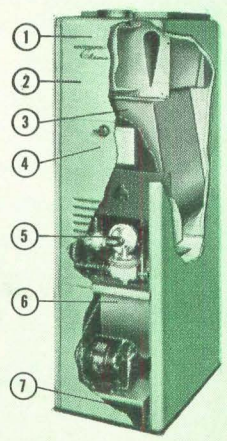
3. **Efficient Heat Exchanger** — all-welded steel, with upward air-flow over abundant heat transfer surface assured by thermodynamic design.

4. **Easy Cleaning**—all parts including blower, motor, controls, burner, and heat exchanger are accessible from front through easily-removed door and panel.

5. **Fuel-Thrifty Burner** — durable cast-iron type with individually drilled ports. Single-port air-shutter prevents clogging.

6. **Quiet Blower**—mounted on "live" rubber to eliminate vibration and noise. Multi-blade fan driven by continuous-duty, long-life motor.

7. **Filters** — mounted in base when return air is brought up from below. Side filter rack is available for return through side or back panels.



B-43

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Mueller Climatrol *fuel-thrifty* Furnace

. . . the compact Type 110 Gas-Fired Winter Air Conditioner

Designed to meet your requirements for modern comfort in low-cost homes and multiple-dwelling housing projects

This new Mueller Climatrol Furnace is tailor-made to your current activities. Look at the list of features — everything you want for the type of building on your board today.

The compact design is ideal for closet installation in low-cost homes and individually-heated apartments — either in the basement or in ground-level utility rooms. The space-saving dimensions of the hi-boy cabinet and the efficient forced-air circulation are ideal for utility-room installations, and ranch-type homes. And the optional white-enamel finish matches other appliances for smart, harmonious kitchen installations.

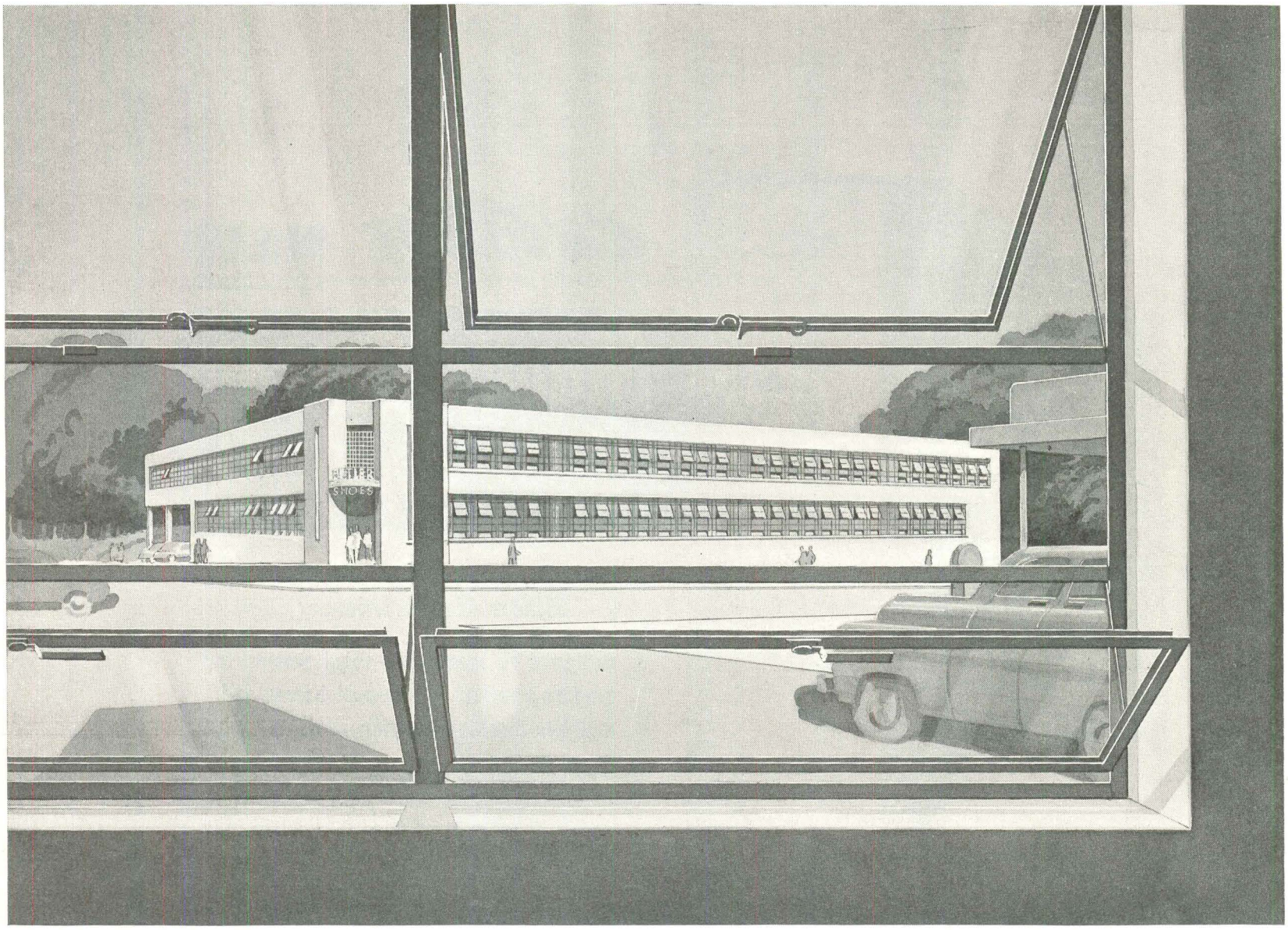
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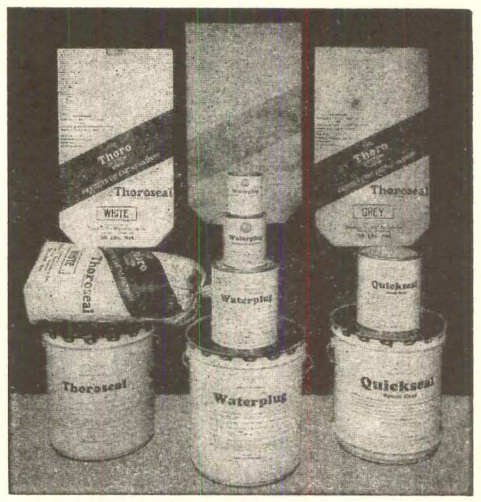
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WATERPLUG, THOROSEAL, QUICKSEAL, and allied materials comprise the nationally-known and favorably-accepted method of masonry surface protection.

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THOROSEAL, Masonry Wall Coating of high structural strength, to fill, seal, sanitize, confine and choke off alkali activity and keep water out of the wall, above and below grade, inside and outside masonry surfaces. Points B, 1, 2, 3, 4, 6 on accompanying chart.

QUICKSEAL, A finer, smoother finish coat which further adds to sealing of the surface and provides an extensive range of exquisite colors; Color Card No. 32. Points C, 1, 2, 3, 4 on accompanying chart.

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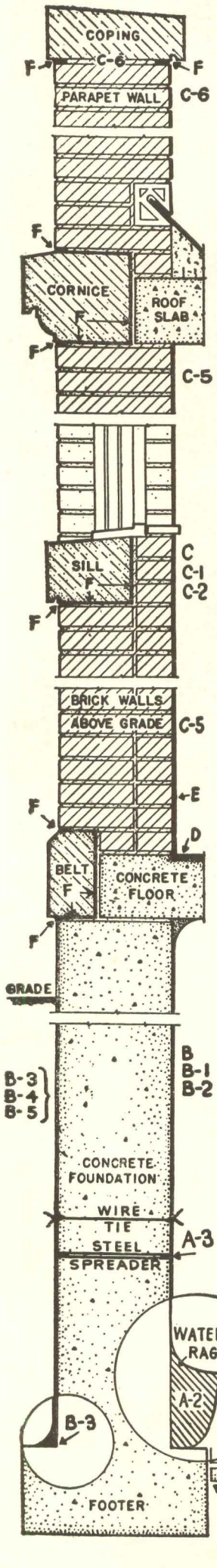
VABAR, A perfect plaster bond for interior surface of exterior walls to protect interior plaster and decorations. Point 5 on accompanying chart.

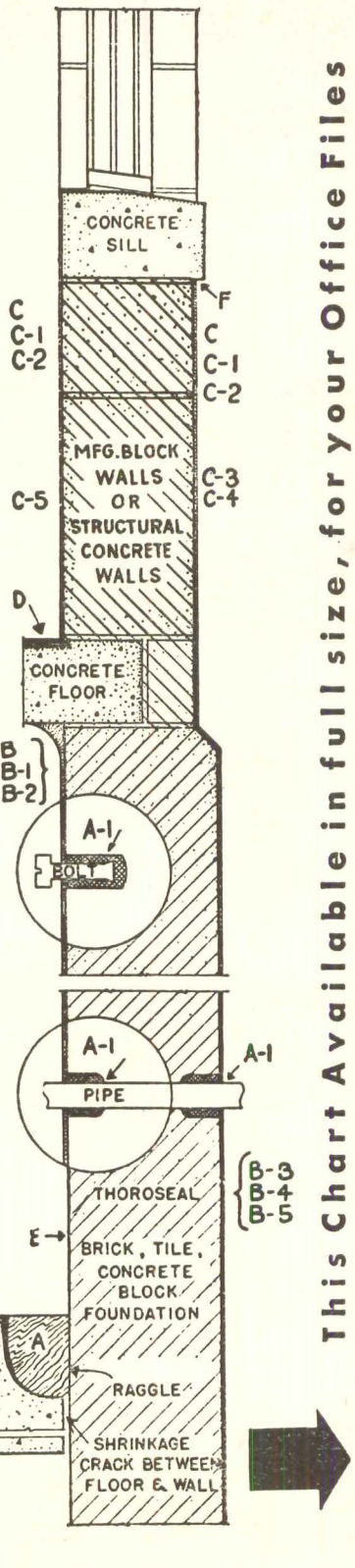
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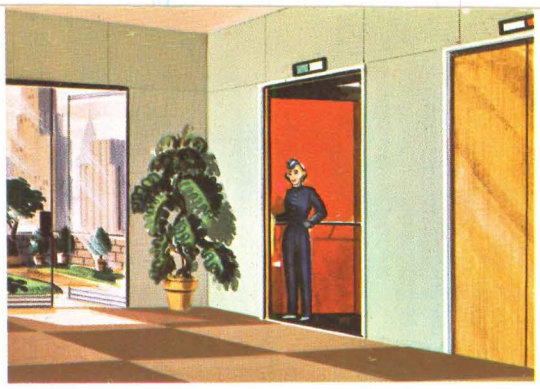


This Chart Available in full size, for your Office Files

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Micartabord, 5/32″ for corridors and elevator cabs; Micarta Laminate, 7/8″ and 1¼″, for furniture tops; Micarta Sheet, laminated to plywood, 1/16″ for desk fronts and tops.

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Micarta tops for tables, bars and fountains. Micarta bar and fountain fronts, where careless customers so often snuff out cigarettes. With Micarta, no damage results.

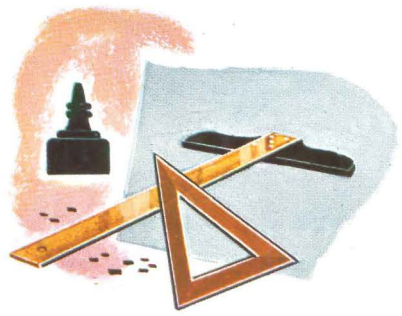


Micarta for table tops, and fixtures. Micarta for its sheer decorative qualities. Micarta for gleaming, clean appearance easy to *keep* that way.

Micarta for sink and counter tops in kitchens, serving pantries, diet kitchens — wherever stubborn resistance to wear and sanitary cleanliness are essential.



How many ways do you employ this tough, beautiful material?



HAVE you thought of Micarta* as ideal, *chiefly* for table and counter tops? If you have, consider how extensively this bright, colorful, good-looking, easy-to-clean plastic laminate is going into operating rooms, toilets and bathrooms, kitchens, elevator cars, and scores of other places in homes, stores, bars, restaurants, hotels and institutions.

Wherever long-time attractive appearance is important, Micarta offers stubborn resistance to wear, abrasion, marring and abuse.

In fact, Micarta requires virtually no maintenance. It is unaffected by boiling water, household cleansers, detergents, dilute acids, condiments, milk, grease, food products, and barber and beauty shop preparations (including hydrogen peroxide up to 8 hours) and even nail polish and remover.

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1/16" MICARTA SHEET

This form is the type used as a "work surface" by fabricators who have the necessary bonding equipment, and is incorporated into table tops, bar tops or counters for:

Uses

Bars
Barber shops
Beauty parlors
Coffee shops
Dinettes
Furniture tops
Kitchen cabinets
Kitchen sinks
Laboratories
Laundries
Lunch rooms
Restaurants
Retail stores
Rumpus rooms
Soda fountains
Utility rooms
Work surfaces

Sizes
30" x 60"
36" x 72"
30" x 84"
36" x 84"
48" x 96"

7/8" and 1 1/4" MICARTA PANEL

This is 1/16" MICARTA SHEET bonded to special cores of Philippine mahogany-faced plywood. It saves fabricators the trouble and expense of doing their own bonding.

Uses

Same as those listed at left, plus occasional use as a structural material.

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5/32" MICARTABORD

This type is used generally as a wall surfacing material. It is easy to apply over finished walls.

Uses

Back bars
Bathrooms
Beauty parlors
Corridors
Counter fronts
Diet kitchens
Elevator cars
Filling stations
Operating rooms
Restaurants
Specialty shops
Stores
Toilets
Wainscoting
Walls
Washrooms
And as kick plates and push plates

Size

48" x 96"

COLORS

TRUWOOD

This is a special type of MICARTA SHEET with a true wood veneer top sheet in:

Korina
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Other woods on special order. (Truwood is not available in Micartabord)

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Gray
Beige
Brown
Green
Yellow
White
Black
Medium Blue Green
Wedgewood Blue
Grayed Yellow
Chinese Red
Light Gray Green
Carmine Red
Grayed Rose
Light Gray
Dark Blue

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Foam
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Blue
Pink
Green
Yellow
Copper

FINISHES All colors and all types of Micarta are supplied in highly polished mirror-finish or in satin finish.

The type of *service* determines the type of Micarta you'll want to use. Check the table in the panel above.

WORKABLE: Micarta can be worked by hand tools on the job. It can be sawed, trimmed, planed and drilled.
For samples, added information, prices, deliveries, etc., use coupon below.

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UNITED STATES PLYWOOD CORPORATION

New York 18, N. Y.

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Try to dent it
Try to stain it
Try to spoil it

A.F.

United States Plywood Corporation
55 West 44th Street, New York 18, N. Y.

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COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

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6. Individual personalized promotion of potential users by the largest and best qualified *technical* field organization in the Industry.

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Refrigeration and Air Conditioning

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. . . **are fully demonstrated** in this bottling plant of the Dr. Pepper Company, Dallas, Texas—Thomas, Jameson & Merrill, Architects. Here PC Glass Blocks provide an effective method of combating the high recurrent expense of sash replacement—a formidable consideration because of the high humidity in such plants. Besides, PC Glass Blocks lend a harmonious note to the over-all attractiveness of the structure. PC Glass Blocks eliminate sash replacements, repairs and repaintings. They keep out dust, grit and dirt. Their hollow construction—with a partial vacuum inside—gives twice the insulating value of ordinary single-glazing. Heating and air-conditioning costs are therefore reduced. There is greater indoor comfort, too, with plenty of natural daylight. Include PC Glass Blocks in your designs. They are "The mark of a modern building."

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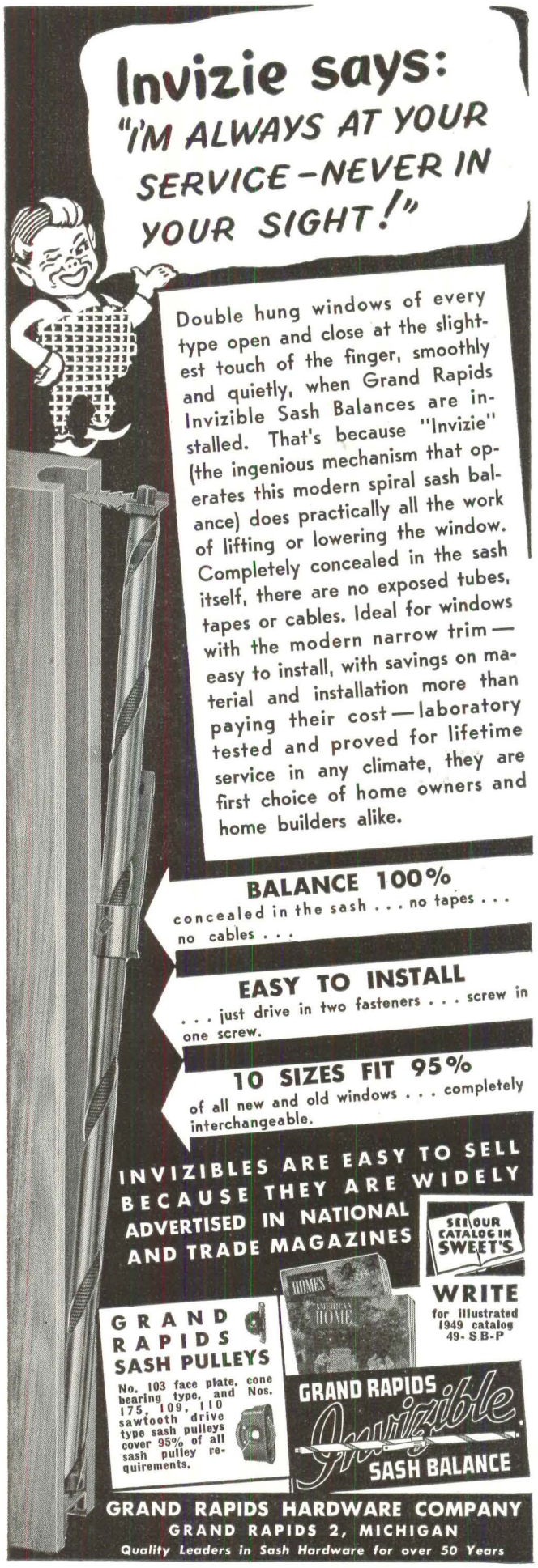
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LETTERS



DEPARTMENT OF MISSING FORUMS

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HELP—I HAVEN'T RECEIVED MY LAST FOUR ISSUES OF Architectural FORUM! . . . It is not a question of the money that I have paid but rather that I WANT THE MAGAZINE!

JOHN L. CRAWFORD
Architect and Engineer
Atlanta, Ga.

Forum:

August .....? ?
September .....? ?
October .....? ?
November .....? ?
December .....? ?

ARTHUR LIONEL, Chemical Engineer
Quebec, Canada

Forum:

Thanks for your letter regarding my subscription to FORUM. You are correct in assuming that the January, February and December issues are the ones I have missed.

Since we are starting out fresh again, I wonder if it would be too much trouble to use my correct name? Since I started taking FORUM I have had about every possible combination of my Christian names and initials, yet my signature has remained the same throughout. Your letter goes a step farther and changes my first name, only it isn't really my first name at all, (I mean even if it were spelled correctly it wouldn't be).

I'm sorry if this begins to sound like a James Thurber, and I suppose I am leaving myself wide open to receive a dozen copies of "Grandma Was a Nudist" by return mail. However, Sturat isn't a very nice name. If you people feel that you have to invent, why not something nice like Silvercuys.

Let's try my real name which is JOHN STUART CAULEY.

If all this is liable to throw your office into too much confusion, just skip it and call me Sturat. I'd sooner be called Sturat and receive the FORUM than be called by my proper name and miss it.

JOHN STUART CAULEY
Toronto, Canada

• FORUM has purchased a blackboard on which the subscription department will write "John Stuart Cauley" 500 times. Readers Lionel, Cauley and Crawford are not the only ones with legitimate complaints about recent inadequacies in FORUM's subscription handling. A changeover to a new mechanical method of processing orders and subscription correspondence is causing the temporary mixup. FORUM promises satisfactory adjustment of all legitimate complaints as soon as the mechanical monsters are tamed—ED.

(Continued on page 54)

PORT OF N.Y. AUTHORITY
WESTERN ELECTRIC
WRIGHT AERONAUTICAL
BAKELITE • DOW-CORNING
GENERAL MOTORS
PHILADELPHIA ELECTRIC
DU MONT LABORATORIES
LINK BELT - and thousands of others have switched!



COLONIAL COLD CATHODE APPEALS TO ARCHITECTS WHO NEED *THE BEST*...

BECAUSE

. . . it offers 2600 lumens per 8-ft. lamp — over 62 lumens per watt.

BECAUSE

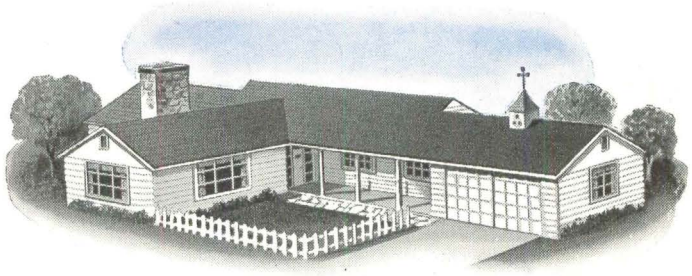
. . . it means long lamp life — 15,000 hours of efficient life expectancy — 72% of initial (100 hour value) lumens at 8,000 hours!

BECAUSE

. . . it is Underwriters' Approved, union made and *guaranteed for* one year.

INVESTIGATE THIS NEWEST APPROACH TO PERMANENT LIGHTING!
COLONIAL CE ELECTRIC
PRODUCTS, INCORPORATED
Foremost Developers and Producers of Engineered Cold Cathode Lighting
EAST PATERSON, NEW JERSEY

FOR THE MODERN HOME



HONEYWELL COMFORT

begins with the Blueprint



WHATEVER a house may cost, it will not be a real *home* unless it is comfortably heated. So, in Honywell national advertising we are urging home builders to consult you about their heating system while plans are in the blueprint stage.

Here are some of the Honeywell controls and control systems that can be selected, depending upon the size and type of home.

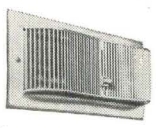
CHRONOTHERM
Electric Clock Thermostat



Every home should have the convenience and economy of automatic clock thermostat regulation. Chronotherm automatically switches to lower fuel saving temperature at bedtime. Then in the morning, before the family gets up, it restores daytime comfort temperature. Chronotherm will save 10% or more fuel and will give greater heating comfort and convenience.

HONEYWELL Diffusion Register

Here at last is a forced air register that combines harmonious appearance with superior performance. It is scientifically designed to spread the warm air into every part of the room. It is so low in cost that no home need use old style, unsightly registers.



ELECTRONIC MODUFLOW
Control System

The new Honeywell Electronic Moduflow control system will give an entirely new conception of even, continuous heating comfort. Electronic Moduflow combines the magic speed and sensitivity of electronics with the Moduflow principle of continuous flow of heat. It does away with the drafts and cold floors caused by intermittent heat supply.



Electronic Relay



Electronic Thermostat

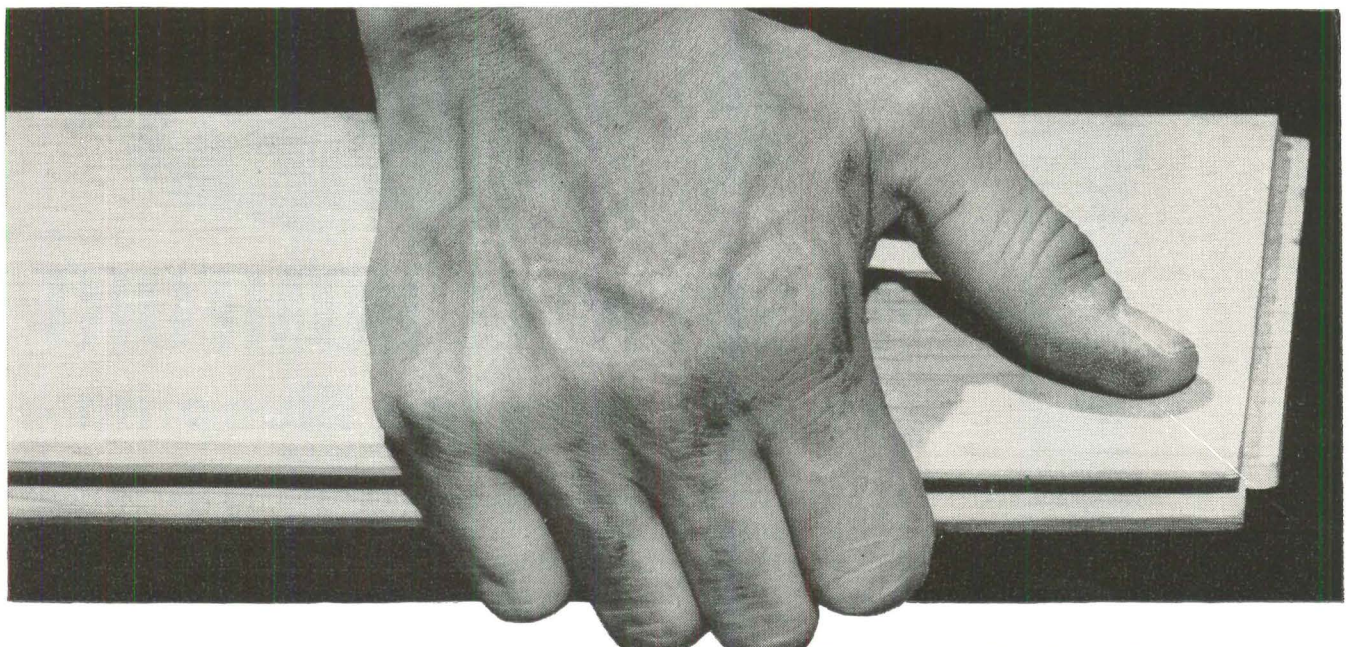
In larger homes and ranch-type homes, more uniform temperatures will be obtained throughout the house by an Electronic Moduflow system with two or more thermostats located in different sections of the house. For basement recreation rooms, a separate thermostat will maintain just the desired temperature without affecting the rest of the house. An Electronic Moduflow Control System will repay its moderate cost many times in added comfort, convenience and fuel economy.

For further information about Honeywell controls and control systems, contact the Honeywell branch office in or near your city. Or, write Minneapolis-Honeywell Regulator Company, 2601 Fourth Avenue South, Minneapolis 8, Minnesota . . . In Canada: Leaside, Toronto 17, Ontario.

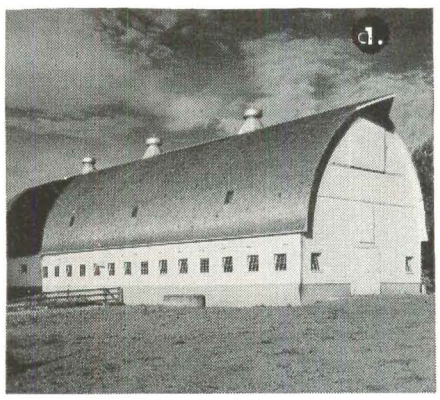
MINNEAPOLIS **Honeywell**
CONTROL SYSTEMS

73 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY

It's here . . .

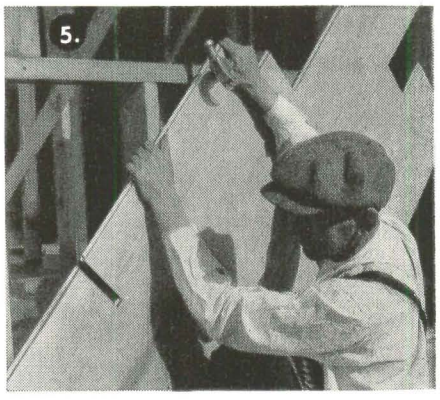


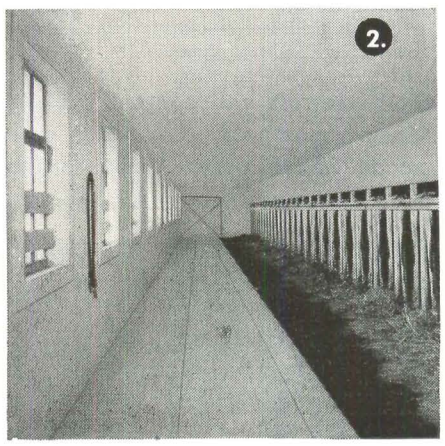
WEYERHAEUSER

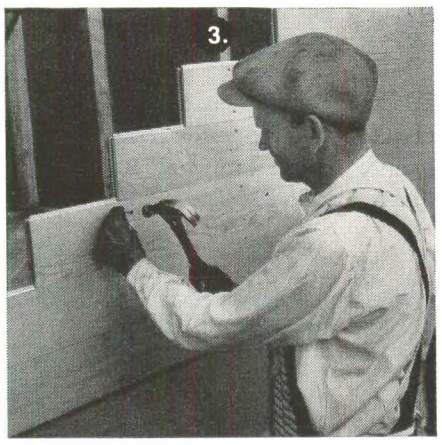


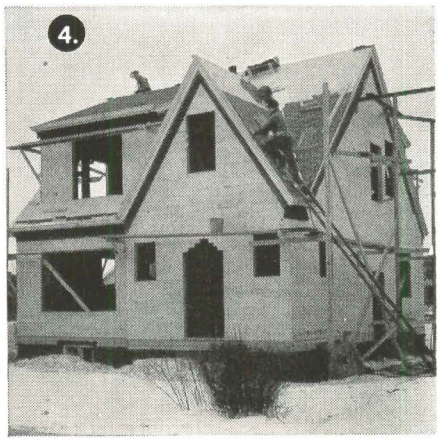
BETTER BUILDING... LESS WASTE!

1. "I was amazed at the saving in time, material and labor", writes a contractor who used End-Matched lumber for siding and lining on a 66 x 100 foot dairy barn.
2. Interior lining of barn is made smooth, clean, and sanitary with End-Matched lumber.
3. Every piece of End-Matched lumber fits. No sawing needed . . . no time lost squaring up the ends. It lays up fast, and stays up tight.
4. Appearance counts too . . . and what could be better looking than the perfectly smooth under-surface of this fine home. End-joints are practically invisible.
5. Diagonal sheathing makes a sounder, more perfect building . . . and End-Matched lumber is ideal for the job. Let the joints fall where they may!









ready NOW !



END-MATCHED *Lumber*

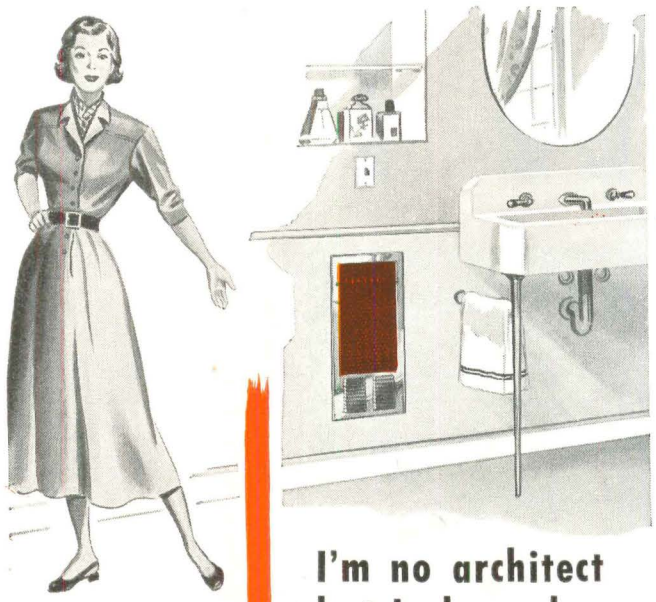
Retail lumber dealers are in a position to furnish End-Matched lumber from softwood species of the West Coast . . . lumber that locks together at the ends and edges to form smooth, tight, rigid panels of any desired area. There is no waste with End-Matched lumber—no cutting and fitting of each piece. It makes possible sound, speedy construction at lowered cost.

End-Matched, with its superior construction qualities for sheathing, siding and flooring, is extremely popular among builders who have used it and seen its extra values. They will be glad to know that End-Matched is available. The pictures on the opposite page illustrate some of the advantages of this superior lumber product.

Sound quality in lumber helps you win friends, build sales, increase your profits. You can offer that kind of quality in fullest measure, in Weyerhaeuser End-Matched Lumber!

WEYERHAEUSER 4-SQUARE
LUMBER AND SERVICES

LETTERS



I'm no architect but I planned my bathroom for Comfort!

ELECTRIC FA QUIKHETER

Yes, this housewife and thousands of other homemakers like the *instant* heat provided by the FA Quikheter. They like its penny-pinching economy, too . . . for the FA Quikheter costs but a few pennies per hour of continuous operation.

In bathrooms, bedrooms or nurseries, the FA Quikheter lets them wash, dress, or shower in warm cozy comfort. A simple flip of the wall switch spurs the FA Quikheter into action . . . quickly and efficiently.

Plan to include the FA Quikheter in your remodeling or building plans. Homemakers will thank you for giving them instant and healthful heating comfort in rooms that need supplemental heat.

You'll find the low-cost FA Quikheter easy to install and economical on everything but comfort. Talk it over with your electrical contractor, or write today for Bulletin No. 1102.

Frank Adam Electric Co.
ST. LOUIS 13, MO.

Makers of BUSDUCT • PANELBOARDS • SWITCHBOARDS • SERVICE EQUIPMENT • SAFETY SWITCHES • LOAD CENTERS • QUIKHETER

CREDIT DUE

Forum:

We would appreciate your including the following credits on the Al and Dick restaurant story (FORUM, Feb. '49):

Max Spivak for the mosaic panel of clown at bar, Ledlin Light Designers as manufacturers of the architect-designed lighting fixtures, and Mortimer Levitt Gallery as sponsors of the art exhibitions on the walls of second floor dining room.

The landscape architects on our Syracuse project (FORUM, Feb. '49) were Bryan J. Lynch and Donald L. Kline.

NEMENY & GELLER
Architects

New York, N. Y.

Forum:

The presentation you made of the Beverly-Carlton Apartment Hotel (FORUM, Feb. '49) was very gratifying, but there has been a grave misunderstanding about the nature of our association on this project.

The building is the result of a continuous and complete collaboration, and it was both unfair and inaccurate to have presented it in any other manner. It was unfortunate, also, that William Porush was not given credit as structural engineer.

ALVIN LUSTIG, Designer
SAM REISBORD, Architect

Los Angeles, Calif.

Forum:

We think that you have done an outstanding job in reporting on Schrafft's restaurant in Rockefeller Center (FORUM, Feb. '49).

However, we have been done a great injustice, since you have shown Acoustone (used for sound quieting) as a Johns-Manville product. Acoustone is made solely by our company and the name is registered as a trade name owned exclusively by our company. . . .

W. J. KENNEDY
Commodity Advertising Manager
U. S. Gypsum Co.

Chicago, Ill.

Forum:

. . . E. Todd Wheeler is, unlike me, a modest man. But surely in any exposition of the Chicago Medical Center (FORUM, Jan. '49), to which he has devoted all of his energies, thinking and coordinating abilities for many years, he deserves a byline. Perhaps you can give him an expression of credit in your next issue.

REGINALD R. ISSACS
Hospital Planning Director
Chicago Medical Center

Chicago, Ill.

For lawns of outstanding beauty specify

Scotts T.M. REG. LAWN CARE PRODUCTS

Since 1870 Scotts Seed has earned a reputation of quality, and today over a million beautiful, weedfree lawns from coast to coast owe their sparkle to Scotts Lawn Care Products. Assure your clients equally outstanding lawns, easier and at less cost, by recommending *Scotts* Lawn Seed and Turf Builder . . . use it on your lawn too, along with Weed & Feed, Pest Control and a Scotts Spreader for quick, even application. For lawns everyone admires, specify Scotts Lawn Care Products.

O M Scott & SONS CO
112 Spring St., Marysville, Ohio
also PALO ALTO, California

"Scotts", "Lawn Care" and "Turf Builder" are registered trademarks of O M Scott & SONS CO



FREE Lawn Care BULLETINS to help you with all lawn building and seasonal maintenance problems. Write today to Scotts for a FREE two year subscription. Our Soil and Turf technicians of the research department are also at your disposal. No obligation of course.

Announcing

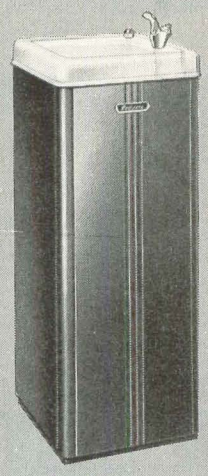
fedders brand

new REASONS WHY NOW, MORE THAN EVER BEFORE,

It Pays to do business with Fedders!

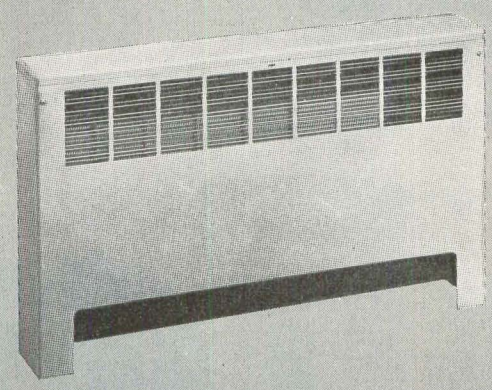


ELECTRIC WATER COOLERS



● Backed by 17 years experience, Fedders Electric Water Coolers are designed for use with bottled water and for connecting to city water lines. Handsome cabinet, sanitary construction, quiet operation, compact size, — make them ideal for every installation. Write for data.

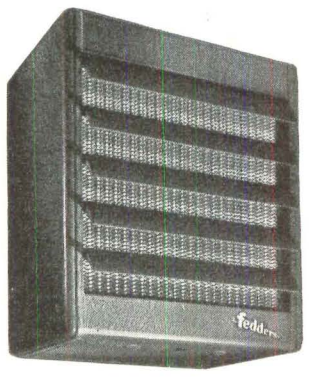
CONVECTOR-RADIATORS



● Available in complete lines for semi-recessed, wall hung, and free-standing installations. High efficiency heating element with copper tubes and aluminum fins assure maximum heat transfer efficiency. Beautifully styled cabinets harmonize with modern decorative schemes. Ask for catalog.

HEAT TRANSFER SPECIALISTS SINCE 1896

Designed, Manufactured and Guaranteed by Builders of Fedders Unit Heaters, famous for Quality for Years



● Thousands of industrial and commercial users depend on Fedders Horizontal and Downblow Unit Heaters. Design features include rugged cabinet, nonferrous heating elements, full protection against expansion strains, modern broad blade fans and resilient motor mountings. Built in a complete line of well-graduated capacities. Write for catalog.

Also:

ROOM AIR CONDITIONERS
Window and Console Models

UNIT COOLERS

AIR COOLED REFRIGERATION CONDENSERS

CLIP-ON SUPERHEAT THERMOMETERS

AUTOMOBILE RADIATORS

CAR HEATER CORES

FEDDERS-QUIGAN CORPORATION

BUFFALO 7, N. Y.

FEDDERS-QUIGAN CORPORATION
Buffalo 7, N. Y.

Kindly send catalogs covering:

☐ Water Coolers ☐ Unit Heaters
☐ Convector-Radiators

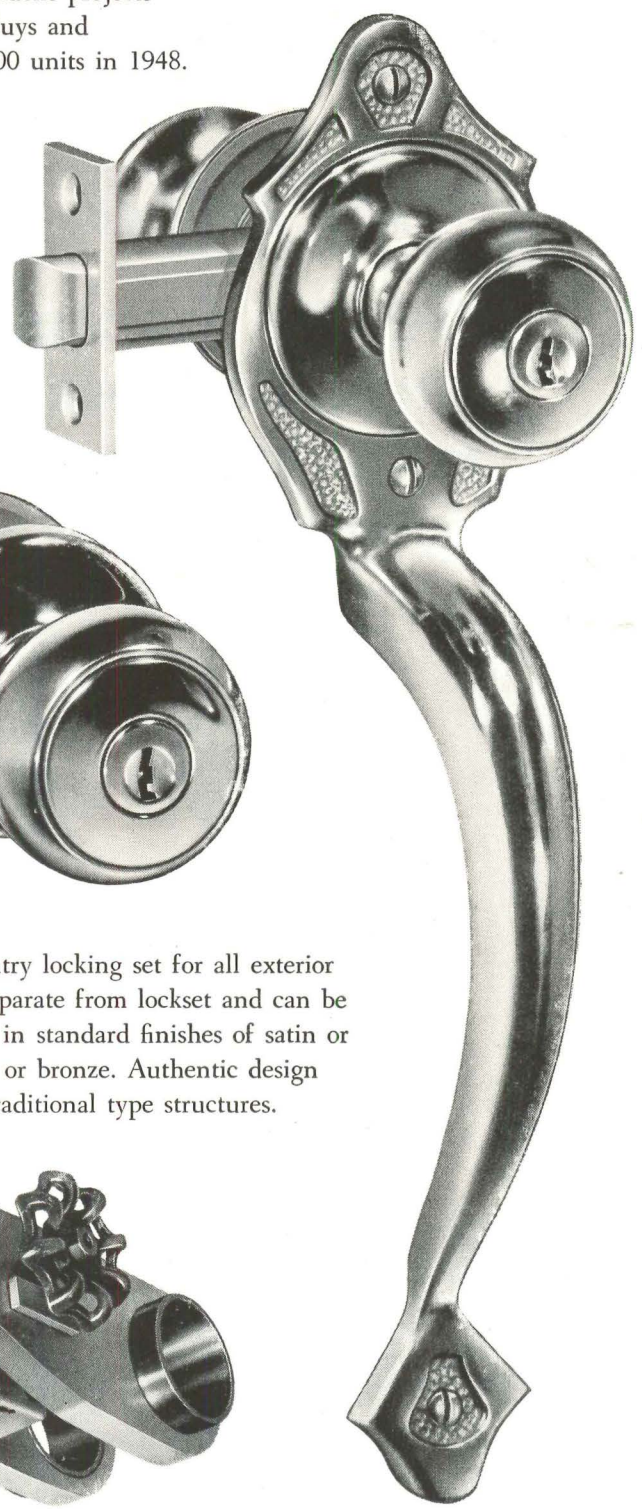
Name .....
Title .....
Concern .....
Street .....
City ..... State .....

First choice for large-scale residential

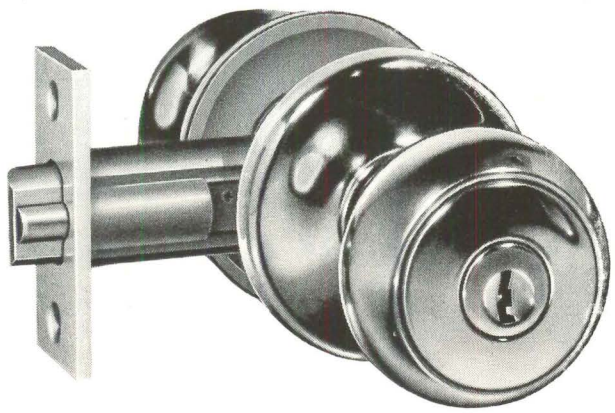


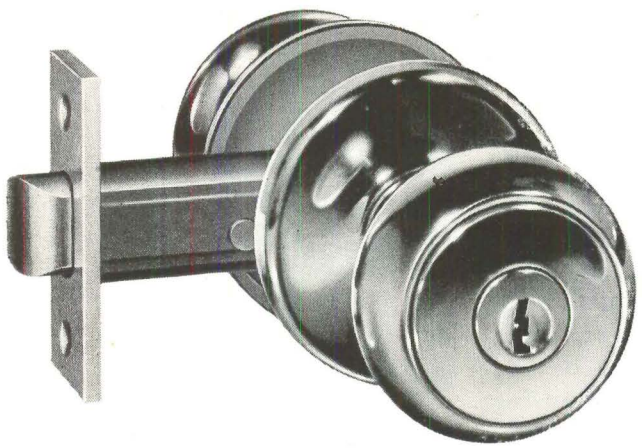
"Rugged, good-looking locks ...and what a buy!"

Says **Louis Kelton,** vice president of Allied Contractors, Inc., builders of Allied Gardens projects in Los Angeles, Lynwood, Van Nuys and Compton, California—over 1,100 units in 1948.



- Savings average 20% on initial cost and installation time!
- Unconditionally guaranteed against defective materials or workmanship!
- Over 4 million now in use!
- Easy 2-hole installation!
- Hand finished for quality!





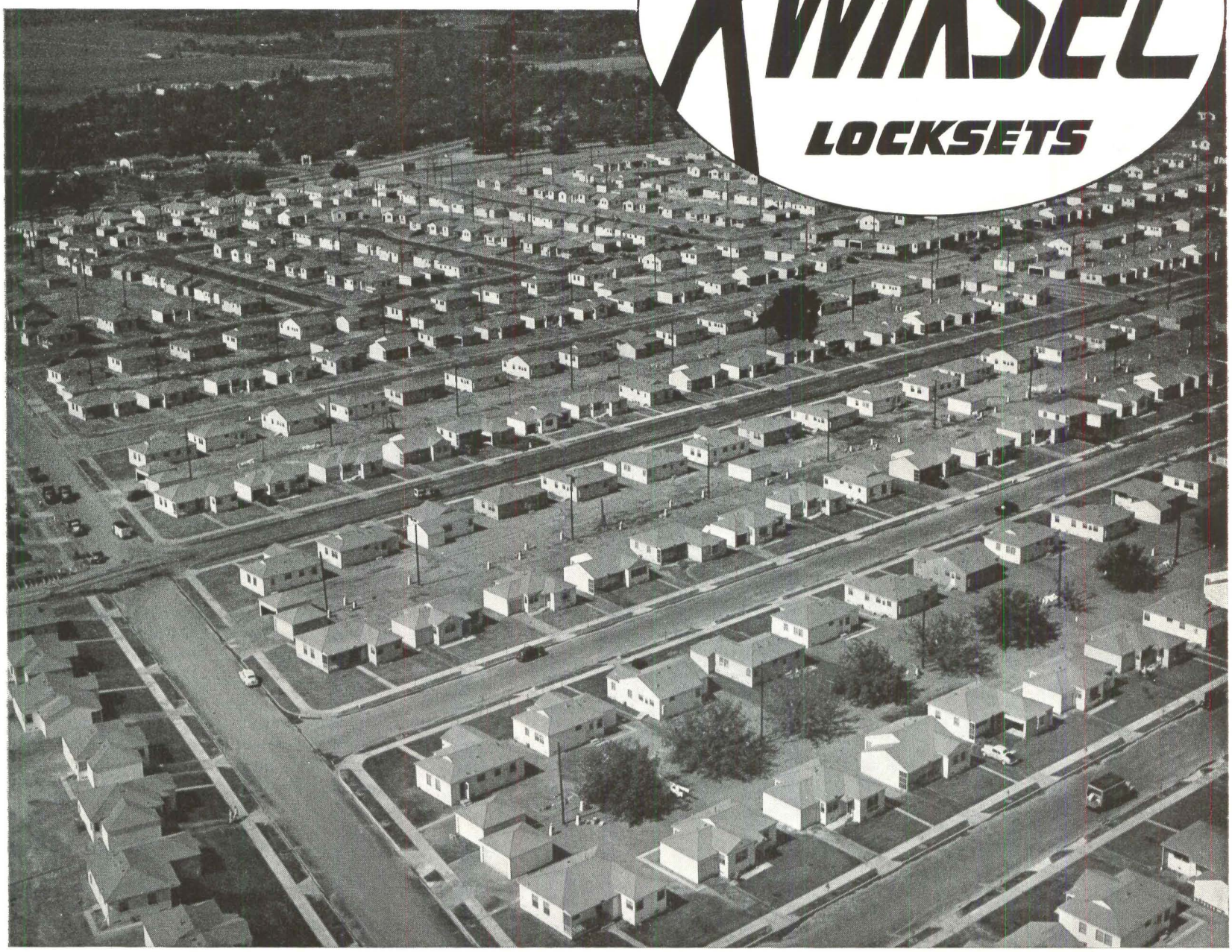
400A, 5-pin tumbler entry locking set for all exterior doors. Handle is separate from lockset and can be so ordered. Available in standard finishes of satin or polished chrome, brass or bronze. Authentic design for all semi-modern and traditional type structures.

KWIKSET JIG PROVES AMAZING TIME SAVER!

Kwikset Jig screws on in a jiffy and holds tight. Assures exact right-angle holes for perfect lock fit. Low in cost, it saves time and money. Write today for full details.

projects everywhere

Kwikset LOCKSETS



The Allied Gardens Project at Van Nuys, California... one of many completely equipped with Kwikset Locksets.

When you specify or use Kwikset locks you add beauty and quality to homes. You guarantee years of trouble-free service. And—because they are low in cost and easy to install—substantial savings are the rule . . . 20 percent or more on average installations!

Born of wartime research, Kwikset lock parts are of brass stampings or pressure cast from Zamak No. 5—the same kind of tough, high-test alloy now used for precision tools and calculator parts. Pin-tumbler, cylinder locks assure top security.

Clean simplicity of design—coupled with fine hand-finished lustre—make Kwikset locks ideal for all residential structures. For beauty . . . for economy . . . for lasting service—Kwikset locks are tops!

Kwikset locksets are available for all standard installations and in all popular U.S. finishes. Deadlatches are optional.

Manufactured by KWIKSET LOCKS, INC. *Anaheim, California*

Distributed by **PETKO INDUSTRIES, INC.**
1107 East Eighth Street, Los Angeles, California

coffee table and dining chair available at the three herman miller showrooms—



one park avenue, new york,

622 merchandise mart, chicago, illinois

exhibitors' building, grand rapids, michigan.

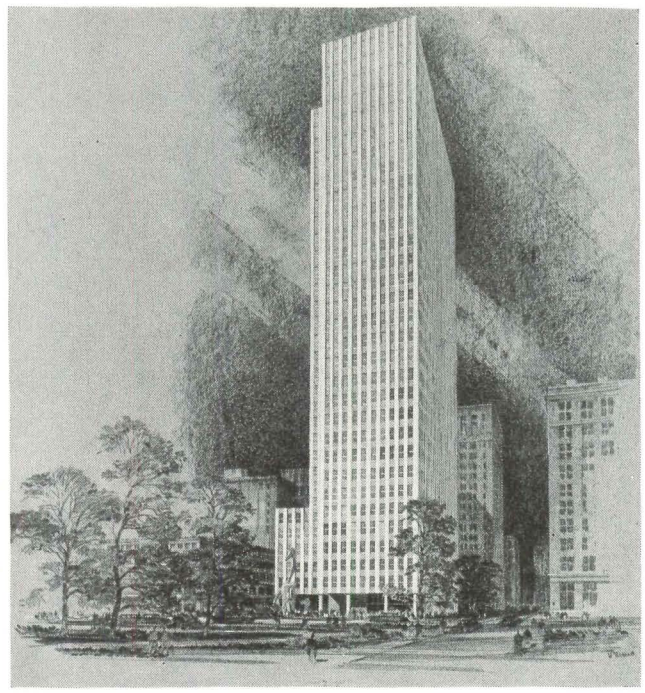


from the herman miller collection

PREVIEWS

ALCOA SKYSCRAPER planned for Pittsburgh

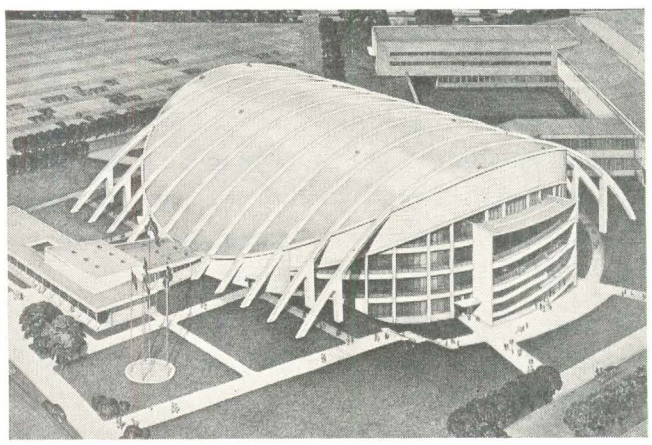
In this office building for the Aluminum Co. of America, New York architects, Harrison & Abramowitz, have reinterpreted the sleek verticals of Rockefeller Center in terms of alumi-



num. Aluminum wall panels, backed by 4 in. of insulating material and fastened directly to the steel frame of the building, will be used for all exterior surfaces, except glass areas. Store fronts, elevator cars, trim, partitions, doors, lighting equipment and acoustical ceilings are of the same material. Two Pittsburgh architectural firms (Altenhof & Brown and Mitchell & Ritchey) are associated in the preparation of plans. The building is scheduled for 1950 completion by the George A. Fuller Construction Co.

COLISEUM takes circular shape in Montgomery

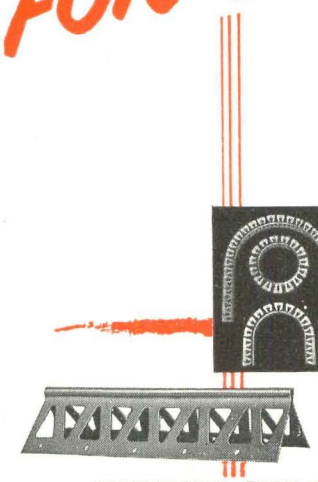
Montgomery, Ala., is the site of a million-and-a-half dollar reinforced concrete livestock coliseum, 340 ft. in diameter.



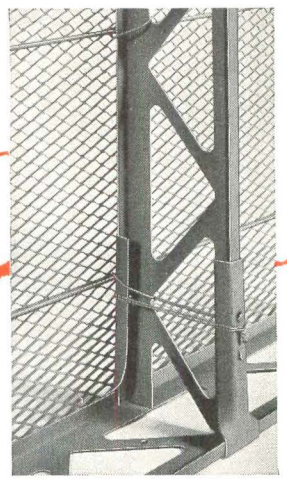
Around the central arena (a 260 x 130 ft. oval) concrete tiers provide permanent seating for 10,250 people. The area under the seat levels will be used for broad concourses, concessions, offices and smaller livestock exhibit areas. Arched ceiling ribs, having a 286 ft. clear span, *(Continued on page 62)*

FOR LASTING SATISFACTION

—turn to Wheeling!

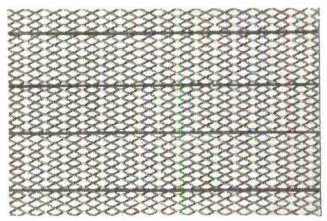


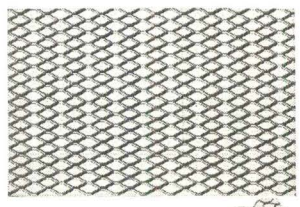
WHEELING FLEXBEAD
A flexible corner plaster support that readily adapts itself to curves and arches. Use Wheeling Flat Apron Corner Bead for protecting exposed plastered corners.



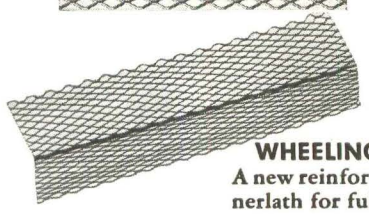
WHEELING BAR-Z PARTITIONS
Its few unit parts quickly assemble into non-bearing hollow plastered steel stud and metal lath partitions, or free-standing wall furring.

WHEELING BAR-X-LATH
Stands stiff to the trowel, handles easier, faster, needs no stretching. Four pairs of No. 11 rods are welded through the mesh for reinforcement.





WHEELING DIAMOND LATH
Flat, perfectly straight with parallel sides, it is easy and fast to install. Stiffest lath of its type. Impervious to rust.

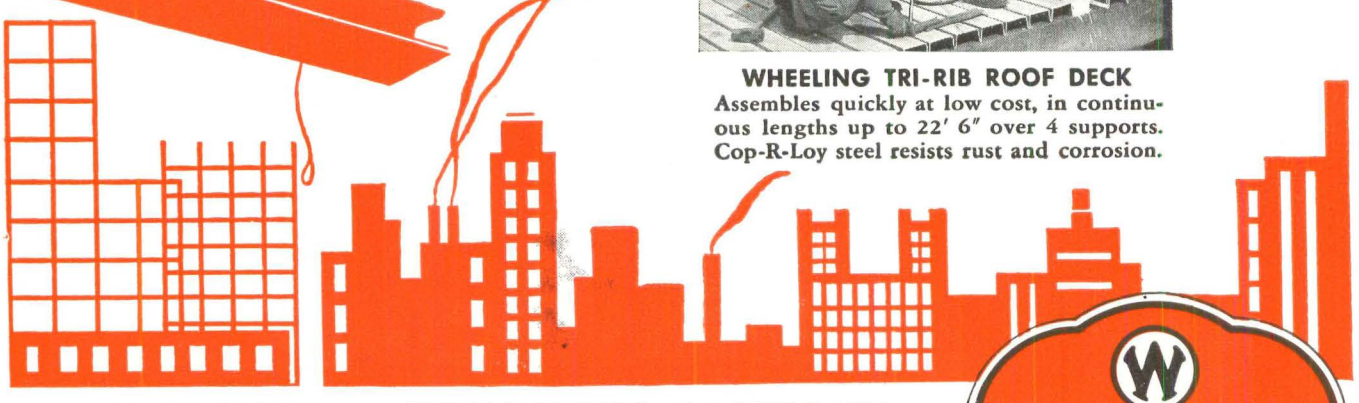


WHEELING CORNERLATH
A new reinforced selvage edge cornerlath for fully plastered exposed corners and inside corner work.



WHEELING TRI-RIB ROOF DECK
Assembles quickly at low cost, in continuous lengths up to 22′ 6″ over 4 supports. Cop-R-Loy steel resists rust and corrosion.





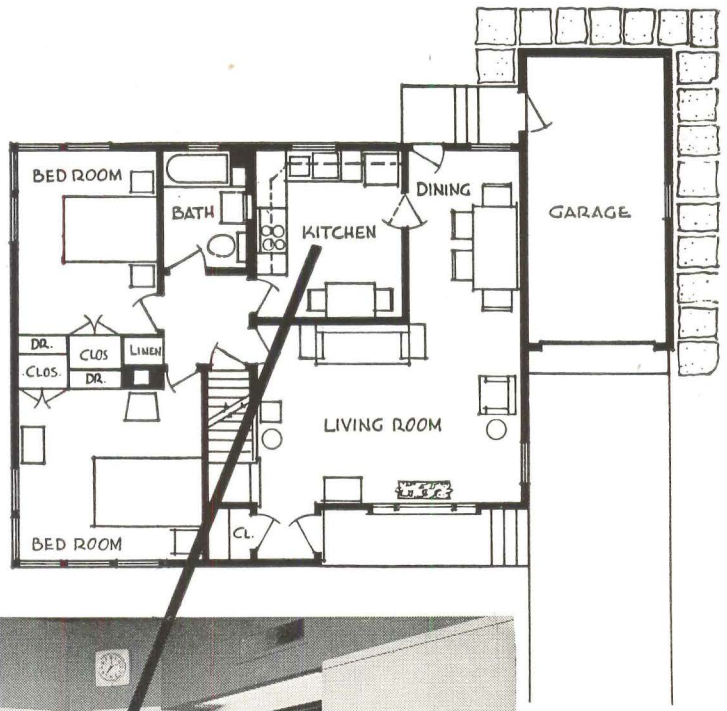
WHEELING CORRUGATING COMPANY

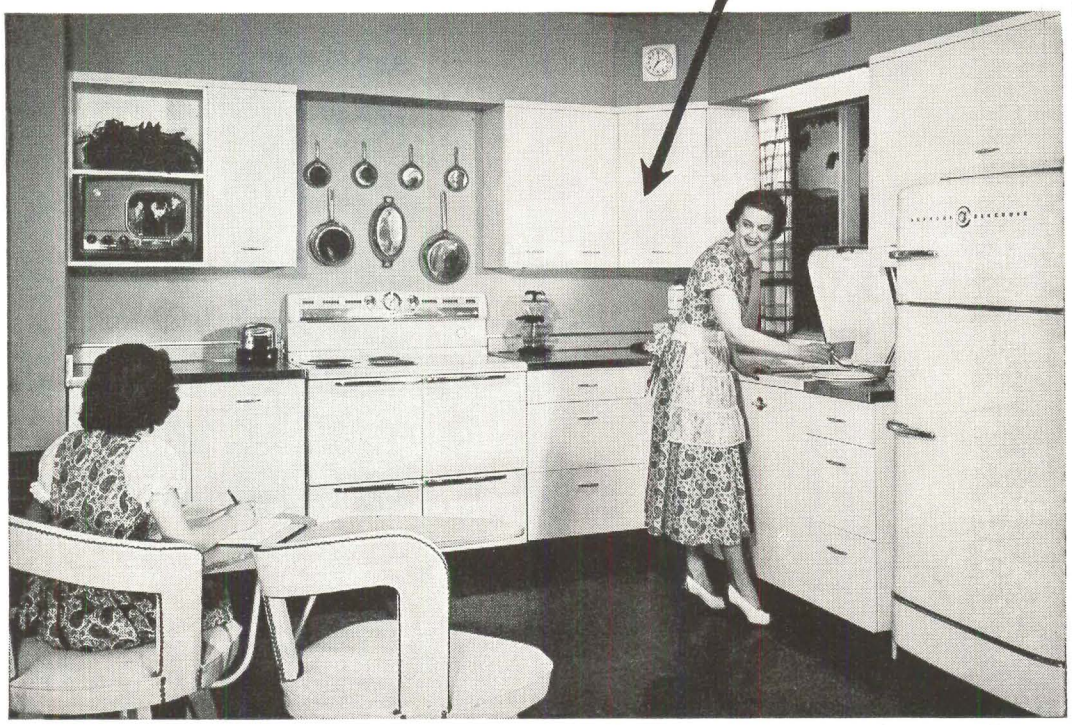
WHEELING, WEST VIRGINIA

Atlanta • Boston • Buffalo • Chicago • Cleveland • Columbus • Detroit • Kansas City
Louisville • Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh • Richmond • St. Louis

Wheeling CORRUGATING COMPANY Reg. U.S. Pat. Off.

Blueprint of the home everybody wants





● HOME BUREAU CAN HELP PUT THE G-E WAY OF LIVING IN YOUR HOMES!

A truly modern home is the home that turns the chores over to electrical servants. Millions of home buyers are learning that they can enjoy the G-E Way of Living for only a few extra dollars a month. Let the G-E Home Bureau help with your plans for a G-E Dream House!

....because it features The G-E Way of Living!

THOUSANDS of families are enjoying easy, electrical living in G-E Equipped homes. And thousands more insist on the G-E Way of Living whenever they go home-hunting.

It's their dream—and it's so easy to make it come true under the "packaged mortgage" plan. A complete modern kitchen is included as a basic part of the house for only $4.80* extra a month. No costly installment charges. No waiting to enjoy the wonderful advantages of a complete modern kitchen.

And for you! Extra profits—but no extra cost! Faster sales! Greater prestige!

Let General Electric Home Bureau help you *plan* the G-E Way of Living into your homes, starting *now!*

**When equipment is included in a long-term mortgage.*

GENERAL ELECTRIC HOME BUREAU SUCCESS STORY OF THE MONTH



Russell Stapp, big home builder of South Bend, Indiana, discovered that public acceptance of houses equipped with G-E equipment was "*definite* and *immediate.*"

The very first morning it was opened for inspection, the Stapps' "Blandings Dream House" was sold. Twenty-seven better-class Stapp houses, all featuring the *G-E Way of Living*, were sold *before* construction. Coming: 25 to 30 more Stapp G-E Dream Houses!

Let General Electric Home Bureau help make *your* next project a success story! Write to Home Bureau, General Electric Company, Appliance and Merchandise Department, Bridgeport 2, Connecticut.

You can put your confidence in—

GENERAL ELECTRIC



DESIGN with WRIGHT RUBBER TILE

Your clients will be delighted when they first see the gleaming beauty of their floors of WRIGHT RUBBER TILE. You, at the same time, will be secure in the knowledge that here is another permanently enthusiastic client because no other floor offers as much in user satisfaction as WRIGHT RUBBER TILE.

CHECK THESE POINTS OF SUPERIORITY:

DENSER, SMOOTHER, NON-POROUS, with a natural gloss that does not wear off.

TWENTY CLEAR, FRESH COLORS that will never fade or change.

SUPERIOR MARBLEIZATION. Note the interesting, rhythmic patterns and absence of coarse streaks and spots.

RESISTS CHEMICALS . . . In tests, WRIGHT RUBBER TILE is unaffected by chemicals that destroy other flooring materials.

GREATER RESILIENCE that reduces walking or standing fatigue, yet gives greater resistance to denting and scratching.

BURN-RESISTANT. Lighted matches and cigarettes burn down without marring the surface.

LOWEST NOISE LEVEL. WRIGHT RUBBER TILE is the quietest of comparable floor coverings—only 1/3 to 1/50 as noisy as other materials tested.

Think of the unlimited opportunities to create striking individualized floor designs when you use WRIGHT RUBBER TILE for every room in the house. You will be building for the future, too, because the beautiful floor and satisfied client will bring you business and prestige for years to come.

WRIGHTEX — Soft Surface WRIGHT RUBBER TILE for homes, hospitals, churches and other installations preferring extremely quiet floors. Available in 20 gay, bright, and soft toned colors.

WRIGHTFLOR — A harder surface WRIGHT RUBBER TILE for stores, restaurants, public buildings and other installations where extremely hard wear is encountered and low maintenance is important. Wide range of colors.

WRIGHT-ON-TOP — A flexible compression cove base that makes an ideal finishing touch for every floor installation. Scuff-proof, stain proof and waterproof. It is the most durable, most sanitary cove base.

Ask for free samples of Wrightex and Wrightflor, together with details on characteristics, standard tile sizes and shapes. A note on your letterhead will get prompt action.

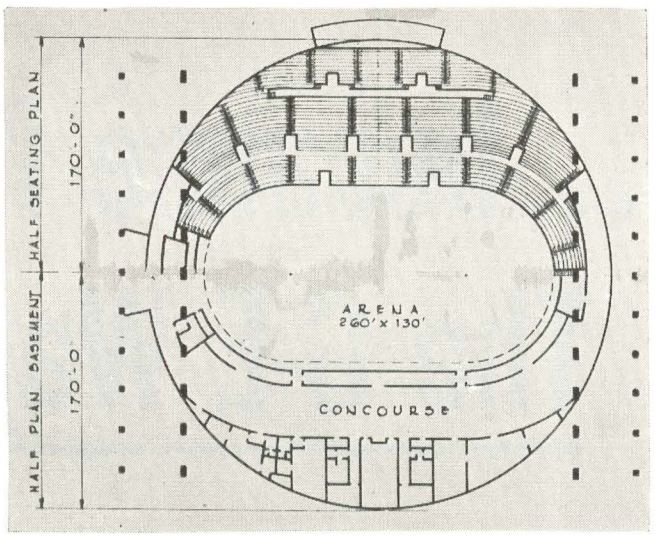
WRIGHT MANUFACTURING CO.
P. O. Box 6567 Houston 5, Texas

WRIGHT RUBBER TILE

FLOORS OF DISTINCTION

A1 - 3AP

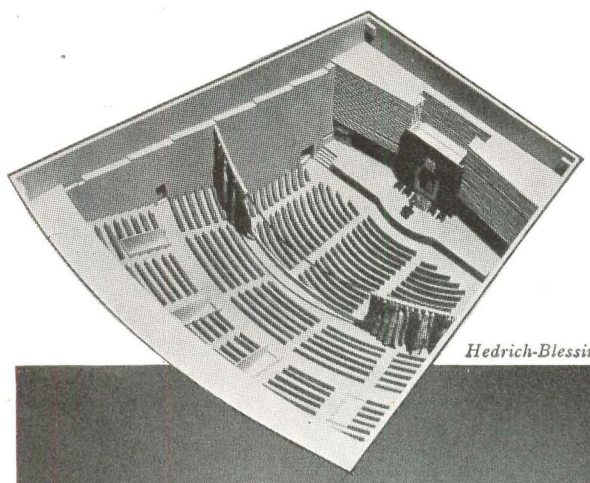
PREVIEWS



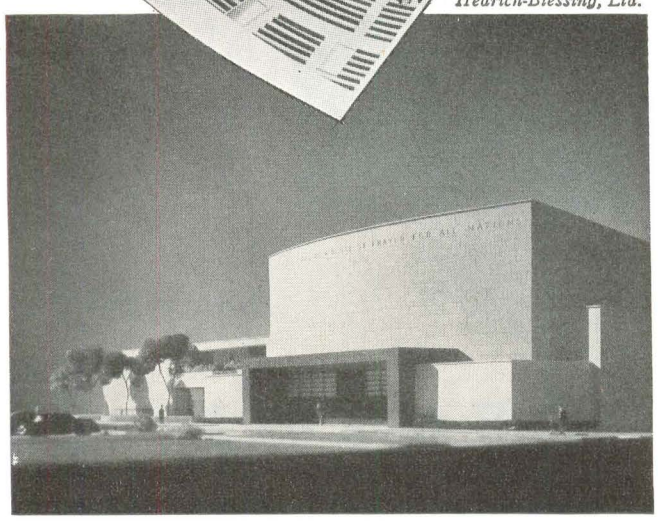
will support the thin shell barrel roof. Alternate arch roof designs were made for concrete and steel. Bidding showed that concrete here had a slight dollars-and-cents-edge, and a hands-down victory on the score of speed. Sherlock, Smith & Adams, Inc., Alabama architectural and engineering firm, designed the new coliseum, with New York engineers, Ammann & Whitney, acting as consultants for the roof and supporting structure. J. A. Jones Construction Co., of Atlanta, Ga. is builder.

CHICAGO TEMPLE includes school and social center

The new Temple for Sinai Congregation, near Chicago's Lake Shore Drive, will be one of the largest and most complete synagogues in the country. It will provide facilities for ceremonies and activities formerly housed in three separate buildings. The main auditorium, of fireproof structural steel with



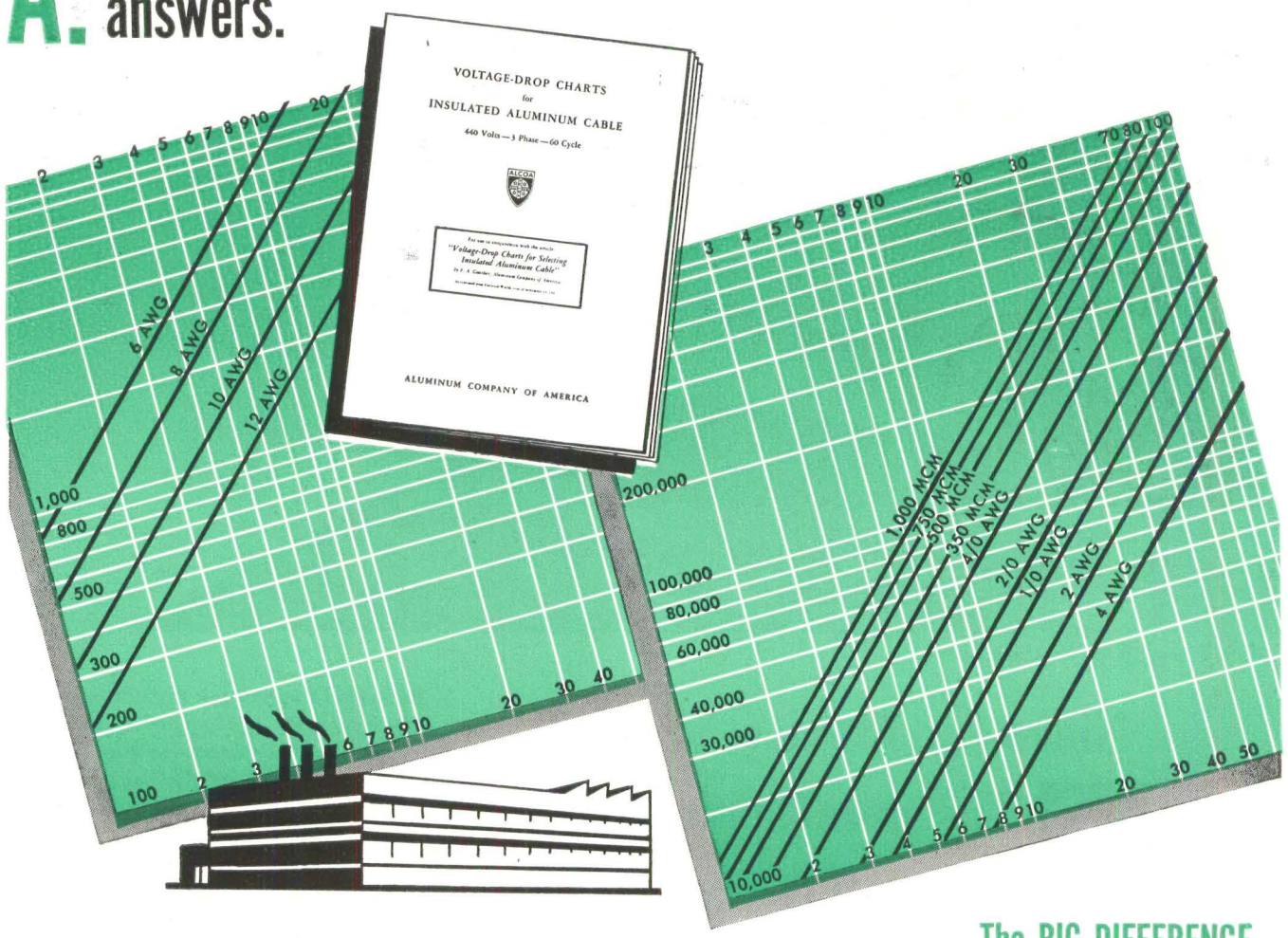
Hedrich-Blessing, Ltd.



(Continued on page 66)

Q. How do I determine voltage drop for aluminum wiring?

A. Your free copy of this ALCOA booklet gives you the answers.



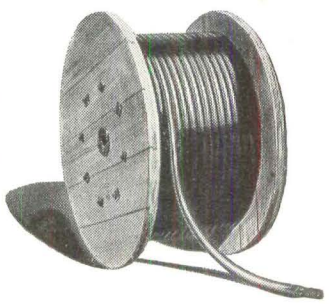
They're worked out here for you—the charts that enable you to determine and specify Alcoa Aluminum Conductor sizes of wire and cable for power and light distribution systems.

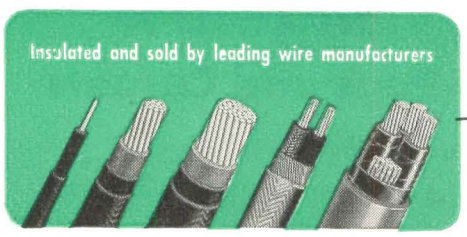
These easy-to-understand, easy-to-use data sheets are only a part of the experience Alcoa has piled up in more than 50 years' work with aluminum conductor. Take advantage of it!

Alcoa makes light, strong, conductive E.C.* Aluminum. Leading wire and cable manufacturers draw, strand and insulate it, and sell it under their own trade marks. Ask your wire supplier about it, or write for more information to ALUMINUM COMPANY OF AMERICA, 1475 Gulf Building, Pittsburgh 19, Penna.

*E.C.: *Electrical Conductor* Aluminum

The BIG DIFFERENCE is in your COSTS!





ALCOA EC ALUMINUM

FOR ELECTRIC WIRE AND CABLE



Winter Read Store, Hartford, Conn.

Nine-hour Wonder:

The installation of new Cushionlok Carpet

LIKE MANY EXECUTIVES, Mr. Winter Read, owner of the Winter Read Store in Hartford, was looking for smart-and-practical new carpeting.

He was shown Bigelow's revolutionary new *Cushionlok*—rich wool with a built-in sponge rubber back. And he said, "There's a commercial carpet that's got *everything!* How long will it take to put it down?"

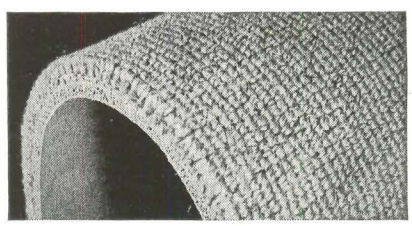
How long? The answer will amaze all of you who have been putting off the purchase of new carpeting because of the time and disruption involved. Amazingly enough, the entire *Cushionlok* installation of Winter Read was completed in nine working hours!

No time-taking preliminaries! The 27" width rolls of *Cushionlok* were brought into the Winter Read Store and cemented directly to the linoleum floor. *Cushionlok* can also be cemented to concrete, wood, plywood.

Little disturbance of furniture, display units! Conventional carpeting would have required complete removal of all fixtures. With *Cushionlok,* only a fraction of the floor space was tied up at a time, as furniture and display units were merely pushed aside.

Business as usual! No valuable store-time lost—no expensive overtime! *Cushionlok* didn't interfere with workers or normal routine of the store. Customers walked freely on *Cushionlok* as soon as it was cemented in place.

Beautiful *Cushionlok* installation—many practical advantages! *Cushionlok* features the famous-for-wear Gropoint weave with the "plus" of a built-in sponge rubber back. Seams are virtually invisible. Carpet feels luxurious, insulates against noise. Ask your Bigelow Carpet Counsel for suggestions on *your Cushionlok* installation!



All-in-one *Cushionlok* has cushion built in. Ideal for stores, offices, any commercial use.

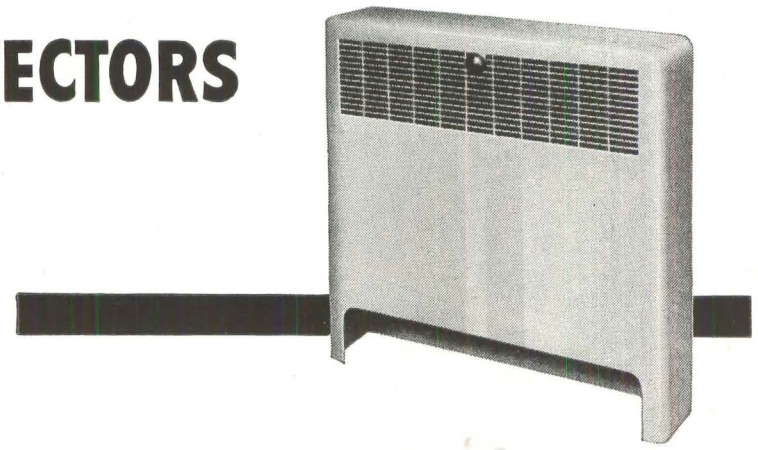
Bigelow

Rugs and Carpets

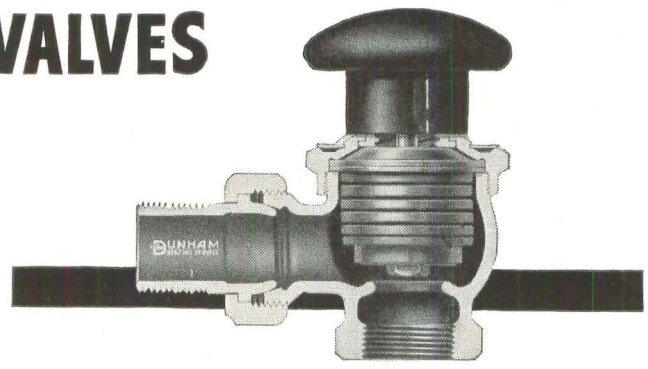
Beauty you can see . . .

quality you can trust . . . since 1825

From **CABINET CONVECTORS**



To **PACKLESS VALVES**



DUNHAM HEATING PRODUCTS
meet the needs of ANY JOB

Increase operating efficiency . . . cut operating costs

Regardless of what your heating equipment need may be . . . whether it's for a single valve or a carload of convector radiators . . . it will pay you well to look first at the Dunham line.

Dunham products are quality-built by heating specialists with a background of nearly half a century of experience.

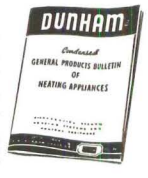
Long a "buy-word" among the country's leading architects, contractors and engineers—they're easier to install, work better, require less maintenance—because they're precision engineered for their jobs.

Heart of the famous
Dunham Vari-Vac Differential System

It is upon these job-proved products that the Dunham Vari-Vac heating system is based—and it is their reliable performance that has made possible the sensational savings in fuel for which this system is nationally famous.

So—if it's value you want, if it's quality you need, if it's performance you like—standardize on Dunham Steam Specialties, Unit Heaters, Pumps, Cabinet Convectors and Baseboard Convectors.

SEND FOR THIS CONDENSED CATALOG



Write today for your free copy of Bulletin 634C and get complete technical data on all Dunham heating equipment. See for yourself why value-wise architects, engineers and building owners the country over are talking *and* installing Dunham products to meet their every heating need!

C. A. Dunham Co., 400 W. Madison St., Chicago 6, Ill.

SALES ENGINEERS **DUNHAM** **AND JOBBERS IN ALL PRINCIPAL CITIES**

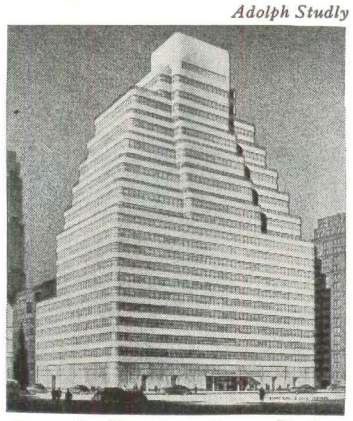
HEATING MEANS BETTER HEATING

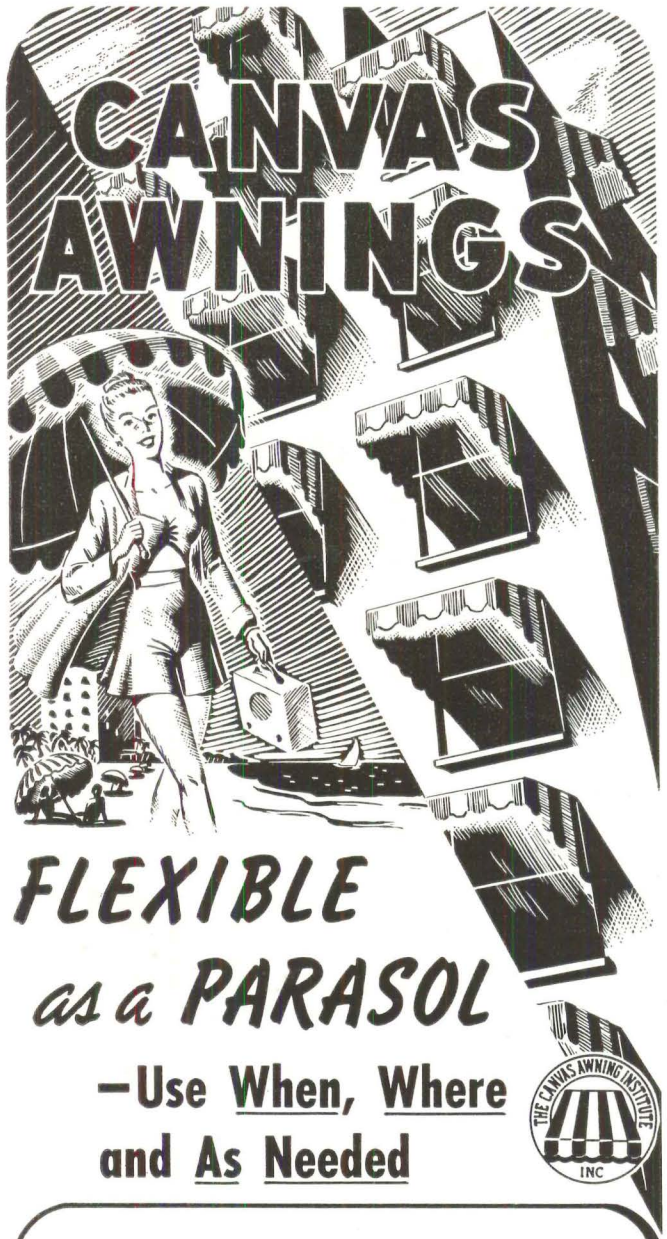
limestone facing, will seat 1,200 people. An adjacent chapel will be available for smaller ceremonies. The reinforced concrete school section is already under construction and will be completed for the fall term. It will have 15 modern classrooms to accommodate groups of all ages from kindergarten to adult study. A large central lobby will serve as a waiting section and give convenient access from one area to another. A little theater and community hall for dances and informal meetings will complete the project. Architects were Friedman, Alschuler & Sincere with the firm of Grinsfeld, Yerkes, Lichtmann & Koenig as consultants.

OFFICE BUILDING features strip windows

Advocates of the strip window can chalk up another recruit to their ranks. The office building soon to rise on Madison Ave., just north of St. Patrick's Cathedral in New York City's midtown district, will have continuous window strips on three sides of all of its 23 floors. Emery Roth & Sons, architects for this air-conditioned structure, have made the most of their 20,000 ft. plot—the typical floor provides 19,500 ft. of floor space. Structural plans were drawn by Engineer James Ruderman *(Continued on page 70)*

Adolph Studly





FLEXIBLE as a PARASOL

—Use When, Where and As Needed

THE CANVAS AWNING INSTITUTE INC

Canvas Awnings offer an inviting challenge to architects and engineers who project their plans into ultimate livability. They assure the utmost in flexibility to meet the exact needs of the hour, the day, or the season. Not only for protection from direct sun rays, but also as simple, effective air conditioners, canvas awnings are colorful, decorative elements to relieve monotony or drabness.

Canvas Awning manufacturers offer fabric patterns and hardware to meet all construction requirements.

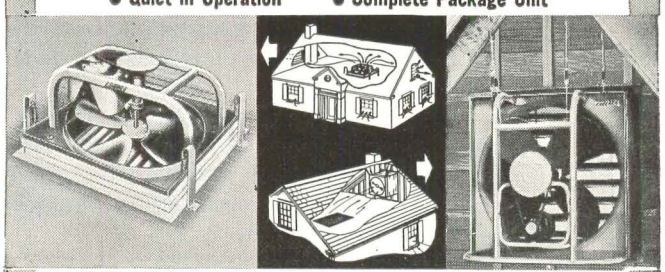
THE CANVAS AWNING INSTITUTE, INC.
AND NATIONAL COTTON COUNCIL
"There is No Substitute for Canvas Awnings"

INCLUDE
HOME COMFORT-COOLING
IN YOUR BUILDING PLANS



CHELSEA
SPRING-MOUNTED FANS

- Easy To Install
- Certified Air Output
- Quiet in Operation
- A Quality-Built Product
- Unconditionally Guaranteed
- Complete Package Unit



TYPE EV-HORIZONTALLY MOUNTED FAN: A popular, all-in-one, package unit for attic floor installation. Includes automatic ceiling shutter; mounting accessories.

TYPE EH-VERTICALLY MOUNTED FAN: Package unit wall type comfort cooler for wall mounting. Includes automatic outside wall louvers and all mounting accessories.



Home buyers today are demanding comfort cooling as a necessary feature in the modern home. A definite asset to any builder or contractor is the statement "Comfort-Cooled by Chelsea" — makes a house better to live in! Include Chelsea Coolers in your planning!

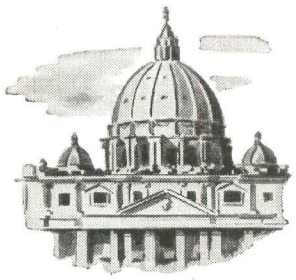
WRITE FOR MANUAL AND CATALOG

Tells how to select and install the right Chelsea Fan for thorough, home comfort-cooling. Detailed description of how comfort-cooling works; address Department B-2.

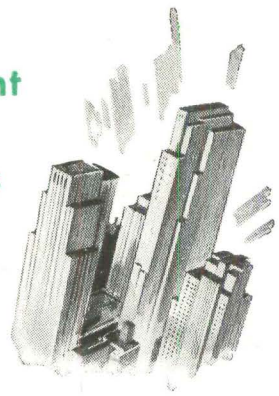
CHELSEA FAN & BLOWER CO., INC.
1206 GROVE STREET, IRVINGTON, NEW JERSEY

aluminum

. . . enduring as a Cathedral



. . . efficient as Modern Business



The aluminum that covers the cupola of the church of San Gioacchino, in Rome, stands substantially unchanged after more than half a century. The same advantages of rustproof permanence and freedom from maintenance dictate its use in industrial roofing and siding.

These two extremes also demonstrate the architectural versatility of aluminum. Its soft-white natural color is attractive, particularly with Reynolds new embossed textures. And though aluminum requires no protective painting, interesting color effects are easily achieved as in the photograph below.

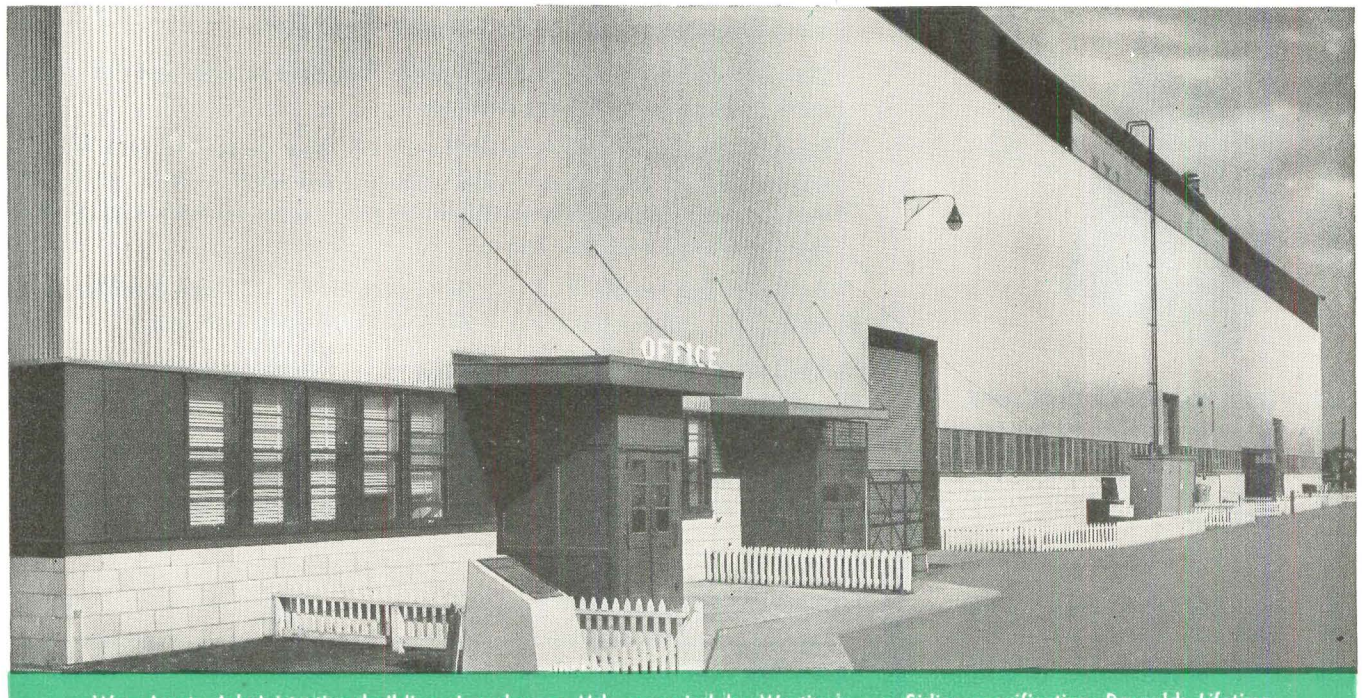
Reynolds, whose historic entry into aluminum production stimulated a vast increase in tonnage, is especially concerned with the *product development* of this modern material—as in building materials. Reynolds *Lifetime* Aluminum Gutters and Downspouts are an example... offering freedom from rust and from wall-stain at about half the price of other rustproof materials.

From roofing, siding, and windows to architectural shapes, Reynolds steadily extends the usefulness of aluminum in building.
For descriptive literature in A.I.A. file form, please write:

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM — REYNOLDS METALS — REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

REYNOLDS METALS COMPANY,
Building Products Division,
Louisville 1, Ky., offices in
32 principal cities

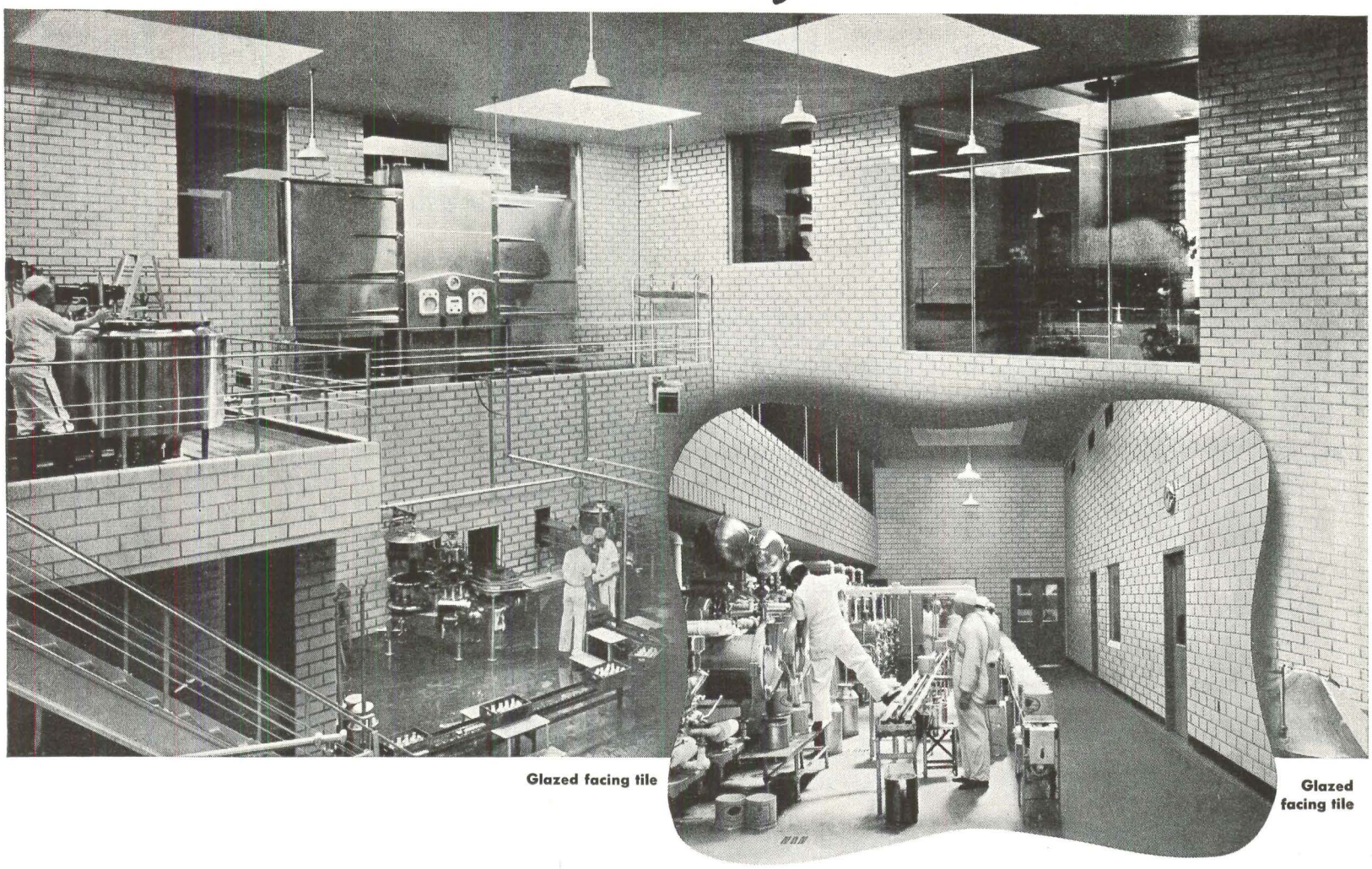
REYNOLDS *Lifetime* ALUMINUM



War Assets Administration building, Lansdowne, Md., occupied by Westinghouse. Siding specification: Reynolds *Lifetime* Aluminum Corrugated, .019" thickness, 2½" corrugation. Contractor: Cummings-Hart Construction Company, baltimore, Md.

"Grade A" for dairies (or any other food plant)

bright, clean interiors of *Facing tile*



Glazed facing tile

Glazed facing tile



SEND FOR 1949 FACING TILE CATALOG, 49-C.

The *new* Facing Tile Catalog, 49-C, is available on request to architects and engineers who write on their letterhead. Get this helpful information for your files today. Address: Facing Tile Institute, Dept. AF-4, 1756 K Street, N.W., Washington 6, D. C.

You can safely mark these dairy plant interiors "Grade A".

They're built with Structural Clay Facing Tile. They're tough and they're clean—*really* clean, and easy to keep that way.

Lactic acid and steam won't harm these walls. Dirt, grease and even bacteria are easy to combat. An *impervious glaze* (that will not crack, scratch or decay) keeps these trouble-makers on the surface where they can be washed away, quickly and thoroughly, with soap and water.

Facing Tile is "Grade A" for economy, too. It's a wall and finish *in one* . . . it builds *fast* . . . slashes maintenance costs . . . never needs refinishing.

And look at these structural values! Great load bearing strength . . . modular sizes . . . fire safety . . . easy adaptability to design . . . lasting beauty . . . extreme durability.

Remember these Facing Tile advantages for *any* interior where food is stored, packaged or processed. Facing Tile is made, glazed and unglazed, in a variety of light-reflecting colors. See Sweet's or write the Institute for more detailed information.

FACING TILE INSTITUTE

1756 K Street, N. W., Washington 6, D. C.

INSTITUTE MEMBERS Belden Brick Company, Canton, Ohio ★ Continental Clay Products Co., Kittanning, Pennsylvania ★ Charleston Clay Products Co., Charleston 22, West Virginia ★ Hanley Company, New York 17, N. Y. ★ Hydraulic Press Brick Co., Indianapolis, Indiana ★ Mapleton Clay Products Co., Canton, Ohio ★ Metropolitan Paving Brick Co., Canton, Ohio ★ National Fireproofing Corporation, Pittsburgh 12, Pa. ★ Stark Brick Co., Canton, Ohio ★ West Virginia Brick Company, Charleston, West Virginia

Economical! Superior!

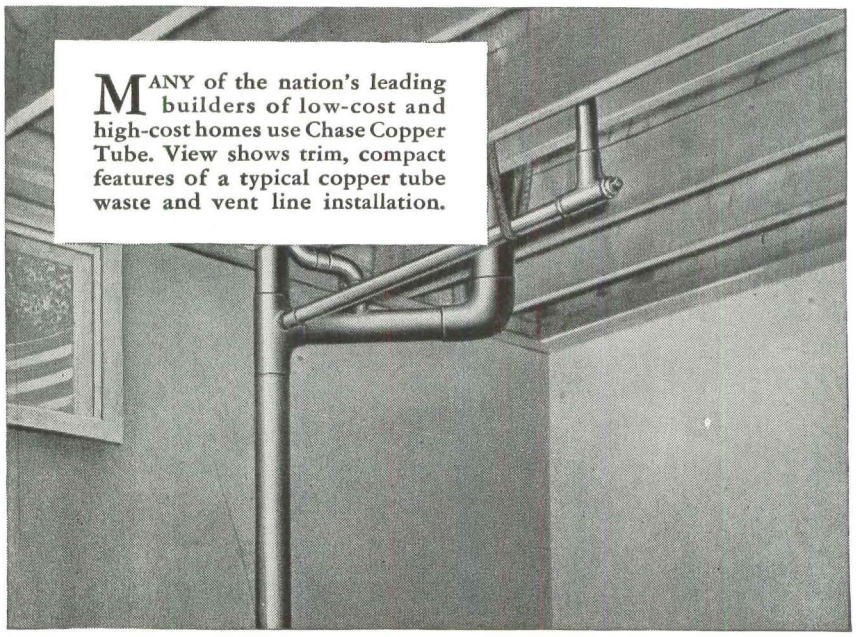
and best of all

Readily available!

CHASE COPPER TUBE

FOR SOIL, WASTE AND VENT LINES!





MANY of the nation's leading builders of low-cost and high-cost homes use Chase Copper Tube. View shows trim, compact features of a typical copper tube waste and vent line installation.

FAST . . . economical installation has made Chase Copper Tube for soil, waste and vent lines a favorite with builders coast-to-coast! Here's why: You reduce many connections because Chase tube is available in 20 foot lengths. Its light weight makes pre-cutting and pre-assembly possible . . . makes maneuvering and handling quicker!

Find out more about the quality features . . . the economy features—the *availability*—of Chase Copper Tube for soil, waste and vent lines. Send for literature. Write Dept. AF49.

FREE! Booklet illustrating actual installations of Chase Copper Tube in homes across the country.



Chase

the Nation's Headquarters for
BRASS & COPPER

WATERBURY 91, CONNECTICUT

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . *handiest way to buy brass*

ALBANY† ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON† INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER† SAN FRANCISCO SEATTLE ST. LOUIS WATERBURY (†Indicates Sales Office Only)

MAKES EXTERIORS DAZZLING



White



SAVES UP TO 40% IN REPAINT COSTS

NO wonder Architects and Builders are swinging to Devoe One-Coat House Paint for exterior repainting. This new, but thoroughly use-tested Devoe paint is designed for its job—to give full protection and a better-appearing job at a substantial saving over conventional two-coat work. It has *twice* the hiding power of ordinary house paint—levels beautifully—and dries to an enamel-like gloss that is fume-resistant and self-cleansing.

FHA Approved For 2-Coats on New Work

TRIAL OFFER TO ARCHITECTS AND BUILDERS ONLY

You or your painter can take this coupon to nearest Devoe Agent—buy one case, 4 one gallon cans, of Devoe One Coat White House Paint, use according to directions, and if not entirely satisfied after applying first gallon return remaining 3 gallons and receive full credit for all 4.

OFFER EXPIRES MAY 15, 1949

Devoe & Raynolds Company, Inc., Dept., AF-1
787 First Ave., New York 17, N. Y.

DEVOE & RAYNOLDS COMPANY, INC. FOUNDED 1754

DEVOE PAINT

Devoe & Raynolds Company, Inc., 787 First Avenue, New York 17, N. Y.

and worked out by the Harris Structural Steel Corp.; Henry Oehrig has been awarded the electrical engineering contract; Uris Brother, Inc. are owners and builders.

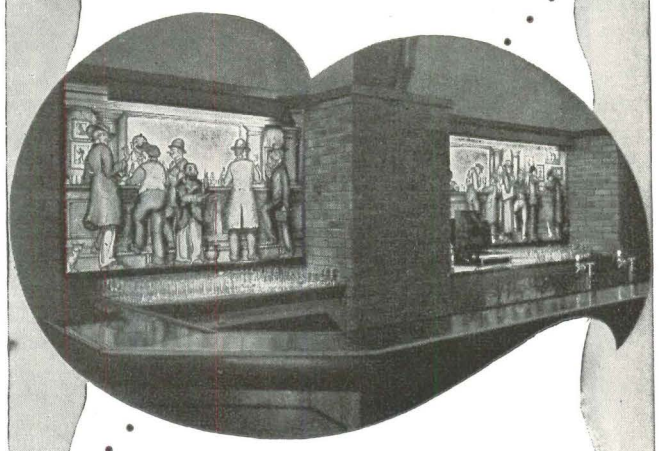
STORE ADDITION in Kansas City is windowless

An addition which will more than double the selling area of the John Taylor Dry Good Co. store (an R. H. Macy associate) in Kansas City got under way April 1st. Kivett &



Myers, local architects, designed the windowless structure which will have an exterior of buff brick and dark red granite. Provision is made for off-street delivery and interior plans call for free-flow counter arrangement, complete air-conditioning and electronic elevators. Trickiest design problem of the job was coordinating the seven-story and two basement levels of the new building with the six floors of the old structure.

SHADES OF YESTERYEAR



REBORN FOR THE FUTURE BY

PHOTOMURALS

Delightful sketches, reminiscent of sawdust covered floors and... free-lunches! Whimsical characters and atmosphere captured for the amusement of today's patrons of the Abraham Lincoln Hotel Men's Bar at Springfield, Illinois. Just one of the multifarious facets of the photomural . . . a medium with unlimited decorative possibilities and substantial momentary attraction.

FULLY DESCRIPTIVE BROCHURE FD . . . FREE.

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425 South Wabash Avenue • Chicago 5, Illinois

How you can use the

FLEUR·O·LIER INDEX SYSTEM*

Whether you make, sell, specify or buy fluorescent lighting equipment, The Fleur-O-Lier Index System will make your job easier. For the Index System provides a simple, usable method for rating and classifying fluorescent fixtures on the basis of their illuminating performance.

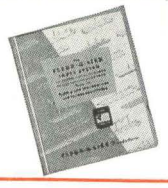
How the specifier benefits...

The Fleur-O-Lier Index System supplies a concise, exact formula for expressing desired illuminating characteristics. The specifier can dictate desired light distribution, degrees of shielding, brightness and method of mounting. His specification is simple and precise. It's easy to write—and easy for the purchaser to follow.

How the buyer benefits...

Fleur-O-Lier fixtures are carefully examined by Electrical Testing Laboratories, Inc., and assigned a rating under the Index System. All the buyer need do is select fixtures that meet the specifier's Index System number. Then with the photometric test data and the coefficients of utilization provided with all Fleur-O-Lier fixtures, he has complete information to make an intelligent purchase of fixtures that meet the specifications and perform efficiently.

**To get complete information on this easy way to specify and buy fixtures, write for free booklet, "The Fleur-O-Lier Index System".*



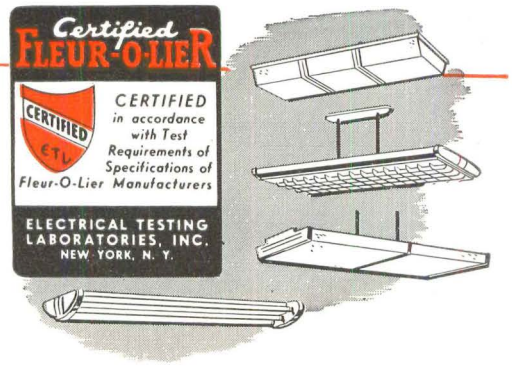
This label is attached to every FLEUR-O-LIER luminaire. It certifies that a similar fixture has been examined by Electrical Testing Laboratories, Inc., and found to conform to specifications. This label is your assurance of excellence in mechanical and electrical construction and in performance. It means that Certified Ballasts and Starters are used and that the requirements of the National Electrical Code have been met.

FLEUR·O·LIER

Manufacturers

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Fleur-O-Lier is not the name of an individual manufacturer, but of a group of fixtures made by leading manufacturers. Participation in the Fleur-O-Lier program is open to any manufacturer who complies with Fleur-O-Lier requirements.



THE LUSTRON HOME

REG. U. S. PAT. OFF

How to ship a house

You will be seeing more and more of these big trailers—each with a "live-load" of a complete Lustron Home—on its way from the Lustron factory to quick erection for a proud new owner.

EVERY day, as more and more Lustron Homes come off the production line, more and more of these big trailers move down through the progressive loading stations of our Columbus plant, ready to speed the delivery of the house America has been waiting for.

Each shipment is a complete Lustron Home. Down to the last bolt and screw, every component part of this new kind of house, with the exception of the foundation, has a place of its own on this specially designed trailer.

New Source of Supply in Housing

Never before in America—the land of volume production—has there been such a source of supply for mass production, quick delivery, speedy construction of homes.

It isn't only that Lustron offers a new building material that combines the strength of steel and the lifetime beauty of porcelain enamel . . .

it isn't only that complete Lustron Homes can be mass-produced in a factory at the full production rate of a hundred houses a day . . .

it is also the speed of distribution of the complete house as a unit and the speed of



. . . Lustron style!

erection at the site that make the Lustron Home meet the needs of a variety of housing situations.

New Standard for Living

Already, two Lustron Homes have been flown to Alaska for testing under the most severe winter conditions. Others have been erected in areas of widely varying climate.

Corporations, considering locations for new plants and expansion of existing plants, have turned to Lustron for help in providing homes in quantity for employees.

Investment and municipal planning groups see in Lustron a logical solution to the problem of high initial costs and high maintenance costs for rental housing developments.

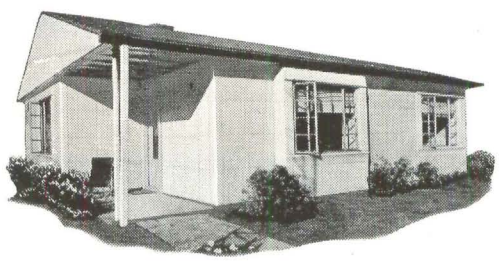
Colleges and universities claim Lustron is the economical solution to the need for housing faculty and student families now crowding every campus in the country.

Private project developers like the speedy erection and quick turnover of the Lustron Home, the high standards of its quality materials, and its acknowledged sales appeal in the mass market.

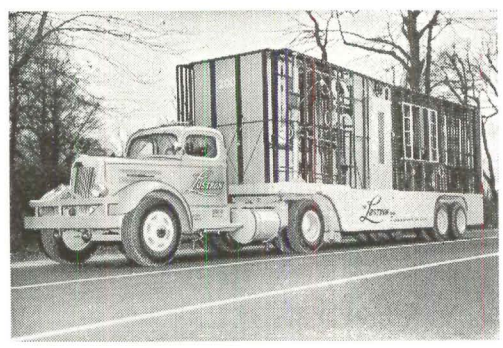
Truly, the Lustron Home is America's new standard for living.

A special department, the Lustron *Fleet Sales Division*, has been set up to expedite the handling of volume unit sales. Your inquiry is invited and will receive careful and detailed attention. © L.C.

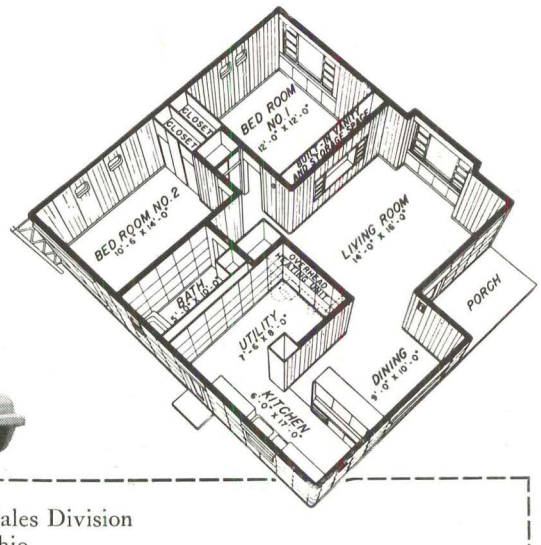
LUSTRON CORPORATION, Columbus 16, Ohio

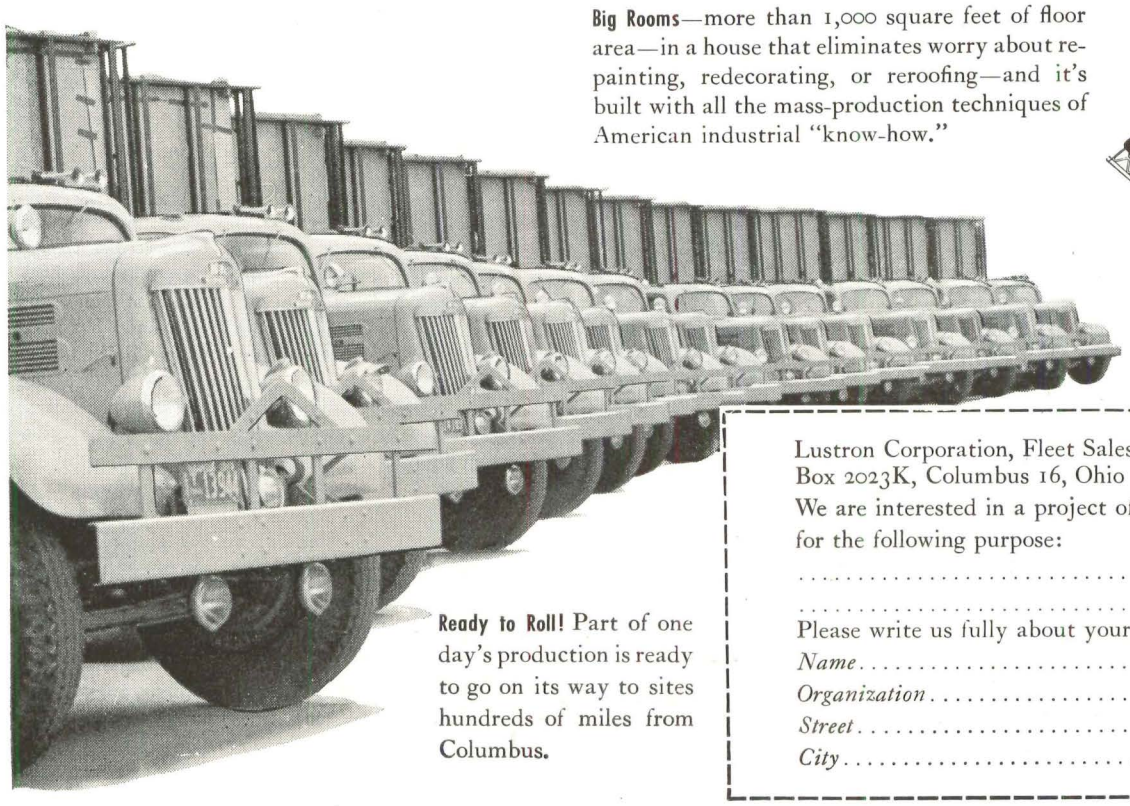


Big Rooms—more than 1,000 square feet of floor area—in a house that eliminates worry about repainting, redecorating, or reroofing—and it's built with all the mass-production techniques of American industrial "know-how."



On the Road! Trailer is loaded with structural units and parts on a "first-off, first-up" basis to speed erection at the house site.





Ready to Roll! Part of one day's production is ready to go on its way to sites hundreds of miles from Columbus.

Lustron Corporation, Fleet Sales Division
Box 2023K, Columbus 16, Ohio

We are interested in a project of..... two-bedroom homes to be used for the following purpose: (number)

.....

.....

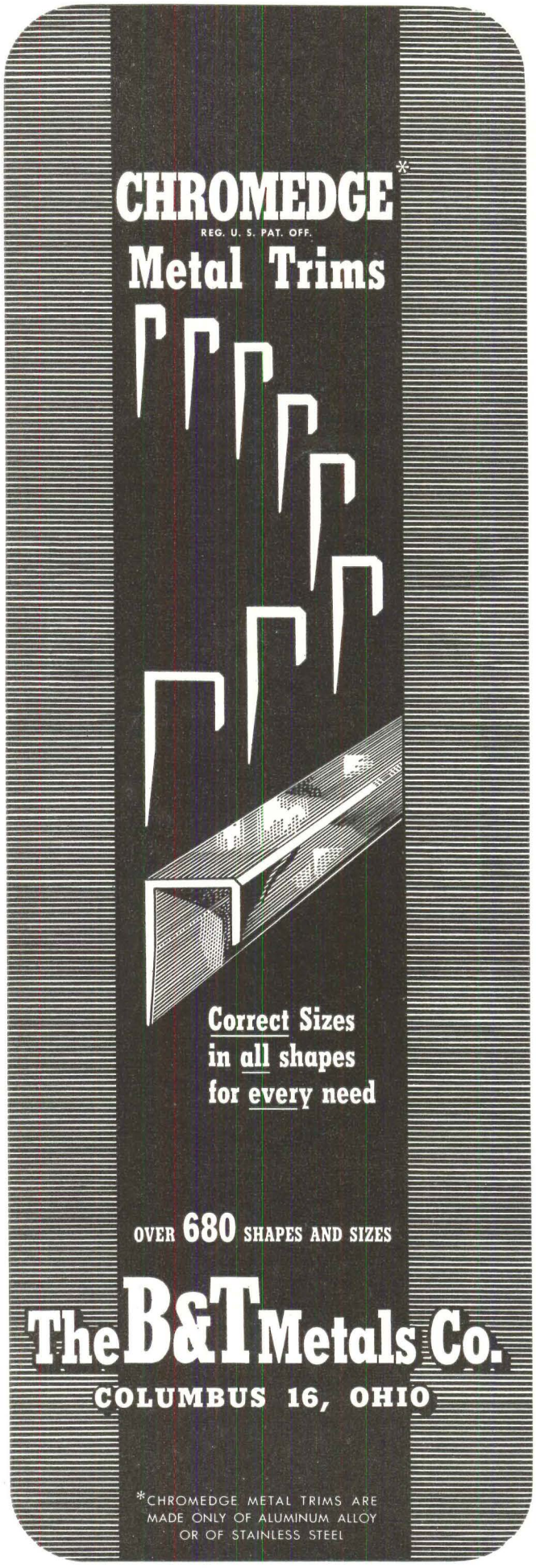
Please write us fully about your interest in the Lustron Home.

Name.....

Organization.....

Street.....

City.....*Zone*.....*State*.....



IN THE forum



BARNETT M. EDELMAN is the prime mover in the Advance Development Co., builders of a group of modern hillside homes (p. 126) in the Mar Vista district of Los Angeles. Edelman built small homes and apartment buildings in Los Angeles from 1924 to 1932, went into the cafeteria business when the depression called a halt to home buying. The housing plight of his GI son and son-in-law after World War II dramatized the general acute need, sent him back into home building. His postwar output adheres to modern planning and design.



ROBERT P. GERHOLZ, Flint, Mich. operative builder, is a native of Wisconsin and a graduate of its state university. In his 26 years in the building business, he has averaged 150 homes a year, mainly around Flint. At first these were custom-built, now he specializes in community development. Biggest project to date: Mott Park, (p. 128), 225 homes, to be completed this spring. Gerholz was president of the National Association of Home Builders in 1943. He has also been director, National Association of Real Estate Boards.



WILLIS FOSTER, California contractor, was born in Illinois studied economics and journalism at the University of California, entered housebuilding after a turn in radio and publishing. Almost all his work to date has been architect-designed, custom-built housing, predominantly modern. The Solar Homes (p. 130) in El Cerrito mark his first venture into speculative building, were "done," he says, "with the conviction that the buying public is becoming educated up to contemporary architecture."



ALBERT D. LEVY, WILLARD BLEYER and **PHILIP E. BENNETT** are presiding officers of the Pennurban Housing Corp., developers of rental housing and detached house projects, the latter employing factory-built homes (p. 133). Architect Albert Levy was a planner for the Resettlement Administration, Greendale, and the Federal Public Housing Authority before Pennurban's formation. Willard Bleyer and Philip E. Bennett each spent several years in public housing, some of these with FPHA.

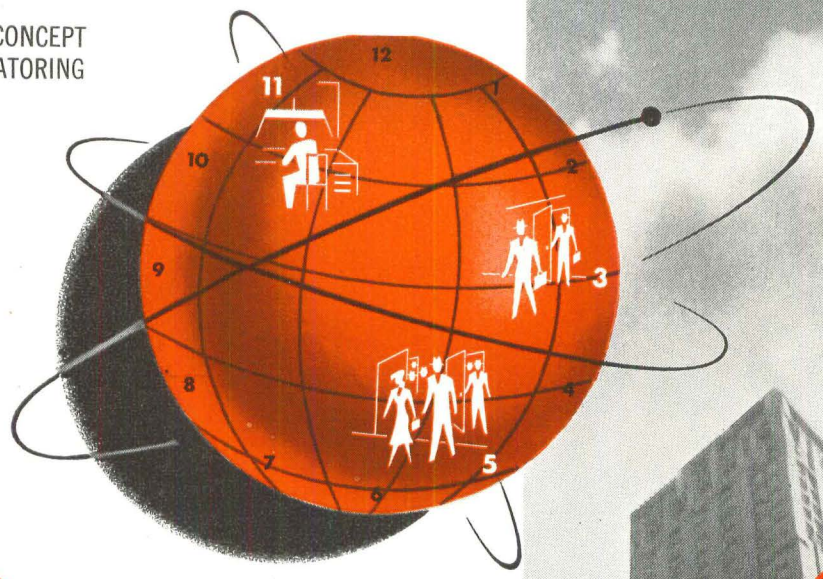


DAVID D. BOHANNON, California builder and land developer since 1925, has more than 7,000 homes to his credit. Recent projects include Hillsdale (p. 136) in San Mateo, a community of over 3,000 homes and 700 apartment units, and San Lorenzo Village with 2,500 units. Bohannon has been president of the National Association of Home Builders and vice president of the National Association of Real Estate Boards, serves on the California Real Estate Association, the National Committee on Housing and numerous other committees on housing and real estate.



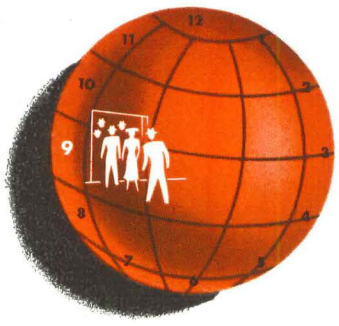
DEL. E. WEBB, famed Phoenix builder, was a minor league baseball pitcher 24 years ago, a carpenter 20 years ago, has since managed to "parlay a saw and a hammer into a million dollars." His Del E. Webb Construction Co., one of the Southwest's largest, is building Pueblo Gardens, a 3,000 unit development in Tucson (p. 140). Still paying twin allegiance to building and baseball, Webb is part owner of the New York Yankees. Other less important Webb business ventures: a brewing company and a film company (with Bing Crosby).

AN ENTIRELY NEW CONCEPT
OF ELEVATORING





timed to the ENTIRE BUSINESS DAY



Let's examine a typical business day in an office building. At 9, everybody UP to work . . . all morning, it's DOWN—UP, UP—DOWN for appointments or snacks . . . 12 noon, mostly DOWN . . . 1 o'clock, heavier UP travel . . . all afternoon, it's DOWN—UP, UP—DOWN again . . . and then at 5—swoosh! everybody DOWN . . . finally, just stragglers and building employees. In all, there are 6 definite patterns of elevator traffic.

Otis AUTOTRONIC Traffic-Timed ELEVATORING is the first system to match service to all 6 of today's traffic patterns. Further, it operates automatically—without constant attention and frequent adjustment by the starter. Otis Booklet B-721-A explains how AUTOTRONIC Traffic-Timed ELEVATORING increases the efficiency of new or existing groups of elevators in office buildings, hotels, hospitals and department stores. Address: Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.

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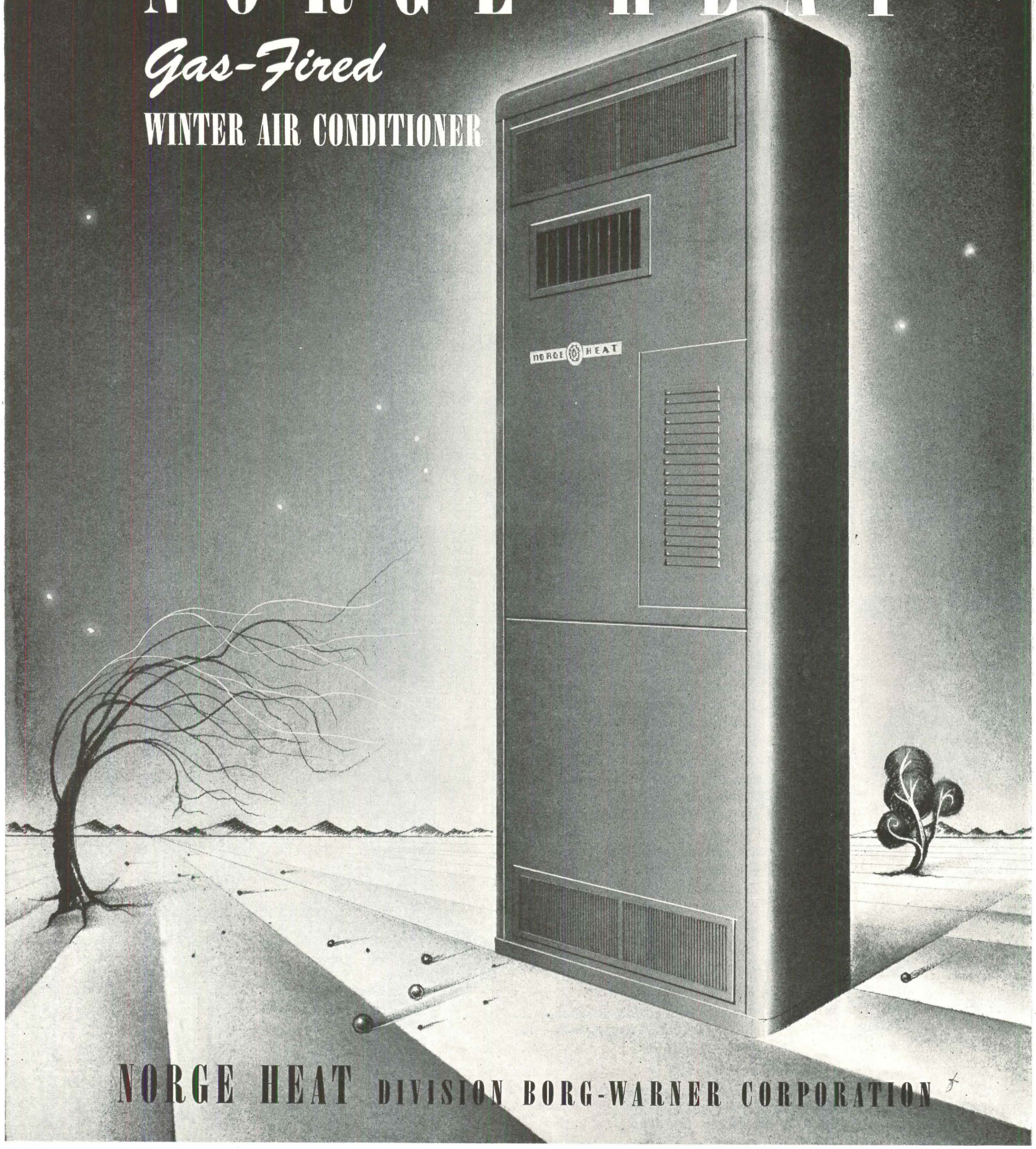
OTIS . . . first with Electronic Signal Control . . .
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OTIS AUTOTRONIC *Traffic Timed* ELEVATORING

NORGE HEAT

Gas-Fired

WINTER AIR CONDITIONER



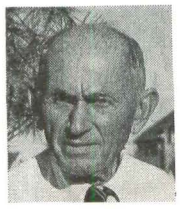
NORGE HEAT DIVISION BORG-WARNER CORPORATION

IN THE forum





LEVITT & SONS, INC. is New York's and the country's biggest house building operation. Since 1947, brothers WILLIAM and ALFRED LEVITT (left) have deposited almost 8,000 dwelling units housing 22,000 people on Long Island's swank North Shore, with hopeful buyers shouting for more of their shiny new models (p. 84). The firm was founded in 1929 by ABRAHAM LEVITT, who supervises landscaping, and sons Bill and Al, who are responsible for overall management.





FRANK HOMES, INC., is a firm of middle-volume Long Island merchant builders owned by three brothers, LEONARD (l.) and PHIL FRANK (r.) and step-brother WALTER STACKLER (c). All three were engaged in their father's house building business by 1925, when Leonard and Walter were 20, and Phil 16, although each had worked for him since public school days. In addition to subdividing and erecting 100 to 200 homes (p. 94) annually in Queens and, more recently, Nassau County, they run an insurance business.



WILLIAM T. SMITH and **HAWLEY JAQUITH** are merchant builders in northern New Jersey operating under the name of Suburban Properties, Inc. (p. 98). Smith (Princeton '35) has been in the residential construction business since 1936, first in real estate brokerage, then in house building. Before the war, Jaquith (Dartmouth '31) specialized in property management. Smith is so well satisfied with his houses that he moved his family into one. A new home is now abuilding for the Jaquith family.



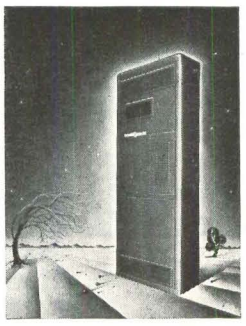
FRITZ BURNS began his career in the building field at the age of eight, distributing circulars for a Minneapolis real estate firm. Years later he became president of that concern. A real estate salesman par excellence at 21, his commissions often exceeded $100,000 a year. He came to California in 1921, has been active in home building ever since. President of Kaiser Homes (p. 118) since its organization in 1946, he is also President Emeritus of the National Association of Home Builders.



CARL N. FREEMAN hails from Worcester, Mass., where he attended Northeastern University and sold securities in 1929. He was a realtor in Washington, D. C. from 1934 to 1937, then sales manager for Fritz Burns in California until 1942. Freeman emerged from wartime service in the Army "with the conviction that modern, servantless people want modern, easily-tended homes." He formed the Carl N. Freeman Co. in January, 1946, builds in suburban Washington (p. 122).



BIRGER V. ZAMORE, head of Zamore Builds, Inc., of Allendale, N. J., was trained at Harvard and MIT, has since amassed 30 years of construction experience in Ohio, N. Y. and N. J., averaging 50 houses per year (p. 124). The present organization consists of Zamore, Père, President, and sons DAVID P. and RICHARD W., Vice-President and Secretary, respectively.



NORGE HEAT

Gas-Fired

WINTER AIR CONDITIONER

● Here at last is a highly styled finely engineered furnace specially designed to meet the specifications of today's architects and builders. Lowest installed cost . . . no service worries . . . nationally recognized name. Think of it! Fits between studding practically flush to the wall . . . only 12¼ inches deep, 32 inches wide, and 88 inches high . . . yet has 62,500 B. T. U. input capacity. Great flexibility . . . can be safely installed anywhere with little or no duct work . . . in wall, closet, utility room or basement. Complete factory tested package . . . built-in plenum chamber and draft diverter . . . 100% safety shut-off controls and automatic thermostat. Provides filtered summer ventilation. Fully approved by A. G. A. for natural, manufactured and L. P. gases. Nothing like it on the market.

Norge Heat has a complete line of great products!



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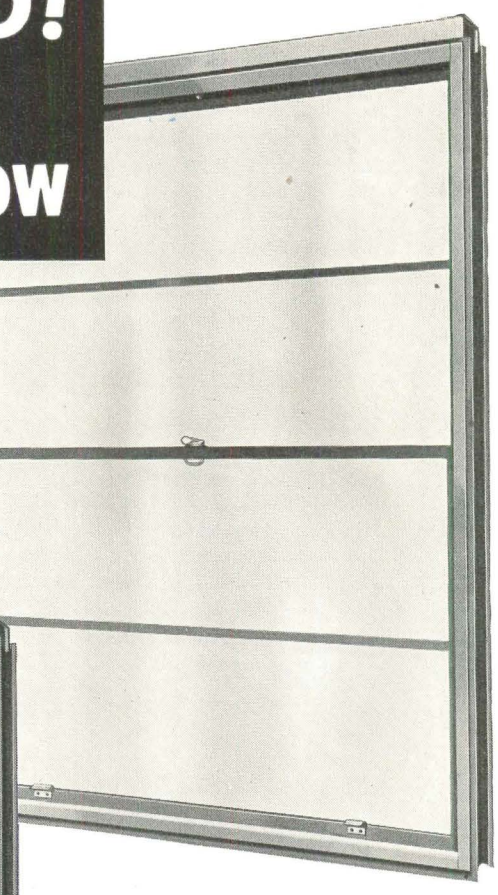
BEST BUY in the WINDOW FIELD!

The Truscon Series 138 DOUBLE-HUNG STEEL WINDOW

trim, smart, streamlined









strong, sturdy, economical

You bet it's the best buy in the window field! These Truscon Steel Windows help sell homes and buildings, because *window beauty* combined with the ultimate in operating simplicity plays an important part in clinching house sales! You'll find, too, that you have universal acceptance because Truscon Double-Hung Steel Windows are structurally-correct!

And, of equal importance, you'll like the downright *economy* of these famous windows—not only is their initial cost low, but because they are pre-hung, pre-fit, pre-weatherstripped and pre-adjusted, their installation cost is also amazingly low! They won't warp, rot, stick or shrink either before or after installation.

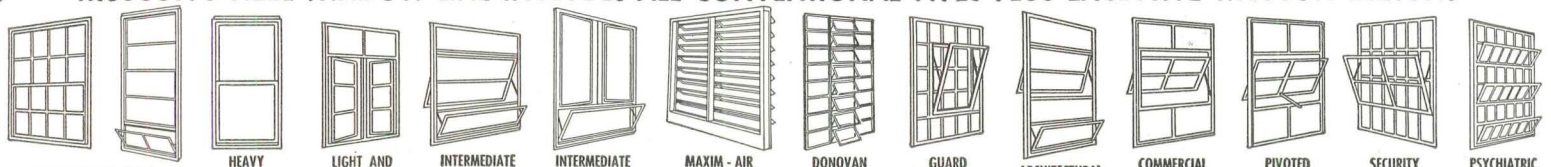
Weights and cords are not used. Operation is controlled by motor-type spring balances equipped with tapes of Enduro stainless steel. Each window is completely factory weather-stripped in stainless steel. Screens and storm sash of the simplest and most economical type are available. Shade, drapery, curtain or venetian blind fixtures, of standard types are easily attached to the interior side, in holes provided in all units.



New Literature! Send for new catalog complete with installation details and specifications on Truscon Steel Windows for every type of residential use.

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TRUSCON'S STEEL WINDOW LINE INCLUDES ALL CONVENTIONAL TYPES PLUS EXCLUSIVE TRUSCON DESIGNS



One Coat makes Rooms New! Really Washable, too!

"Dutch Boy"

WONSOVER



...the Once Over Oil Flat Paint



Here's a top quality, oil flat paint that really covers walls in *one* coat. That's why it's called "Dutch Boy WONSOVER."

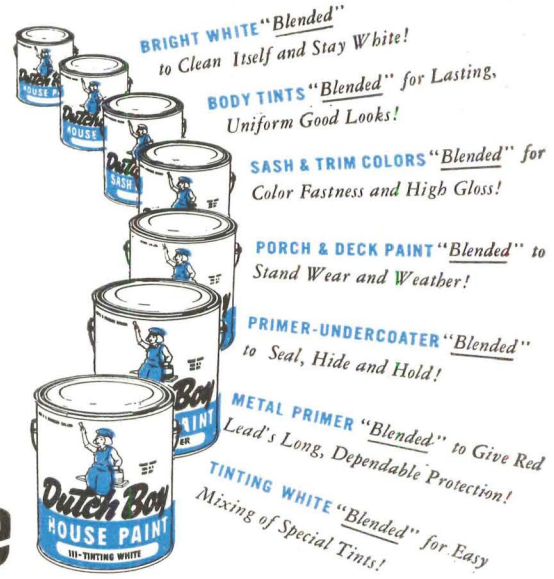
WONSOVER has hiding power that literally blankets the surface. Can be used over any painted surface, wherever flat paint is suitable — plaster walls, ceilings, wallboard, woodwork, brick, concrete. It does the job also over wallpaper and water-reduced paints.

WONSOVER goes far per gallon and levels out to a rich-looking flat finish. Sets dust-free in a few hours, dries overnight and leaves no unpleasant odor.

Comes in soft lovely colors as well as white and off-white. Give "Dutch Boy WONSOVER" the *once-over* today!

Really Washable, too! Your clients will like this! WONSOVER can be washed over and over again. And it cleans *easily* because dirt, stains and fingerprints do not sink into the film.

NATIONAL LEAD COMPANY: New York 6; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; Pittsburgh 12: St. Louis 1; San Francisco 10; Boston 6 (National Lead Co. of Mass.); Philadelphia 25 (John T. Lewis & Bros. Co.).



BRIGHT WHITE "Blended" *to Clean Itself and Stay White!*

BODY TINTS "Blended" *for Lasting, Uniform Good Looks!*

SASH & TRIM COLORS "Blended" *for Color Fastness and High Gloss!*

PORCH & DECK PAINT "Blended" *to Stand Wear and Weather!*

PRIMER-UNDERCOATER "Blended" *to Seal, Hide and Hold!*

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TINTING WHITE "Blended" *for Easy Mixing of Special Tints!*

Line up with **The "Dutch Boy" Line**

into his own hands greater control of the complicated building process. He prospered because he was able to produce a house which, price-wise, the contract builders could not touch. Many old-fashioned hammer-and-saw builders were unable to meet this competition and went out of business, making still more room for big operators.

The new status of the merchant builder was first recognized in 1943 when the home builders, formerly a division of the powerful real estate association, branched out with their own organization, the now familiar National Association of Home Builders, whose 6,000 builder-members claim to build 80 per cent of the nation's single-family houses.

The chain stores suggest a pattern

The emergence of the large-scale builder with his improved product has already benefited the industry and the consumer. Promised are still greater benefits, comparable to those which accompanied the recent development of the chain stores and big department stores. The growth of these merchandising establishments brought about a shift in economic power and in control of the product from manufacturer to retailer, with consequent benefits to the consumer.

Before the chain and department store appeared, a complicated and perhaps inefficient system of wholesalers, warehousers and commission men linked the powerful producer with his eventual retail outlet. All retailers were small and completely at the mercy of this involved distribution system. Since they could not function without the extension of credit from wholesale houses, they were in no position to talk back or to suggest improvements. With the emergence of large-scale retailers, many small retailers and many middlemen were eliminated. Even more important, these bigger retail outlets could at last make effective demands on the producer because of their volume sales. Customer preferences as to type and price of merchandise were passed back to the producer and special orders were filled to the store's specifications. Although the small retailer and his suppliers still move about half of the country's consumer goods, the chains and big stores move them more quickly and economically.

With mass sales in the building field, this same saving of time and money and this same influence on the manufactured product may also be possible. The merchant builder may have within his grasp a real opportunity to improve his house and to sell it for a lower price. Whether the building industry will follow out the parallel of the retail store cannot yet be predicted. But already certain large-scale builders like Fritz Burns are influencing the design of building materials and equipment. Others, such as William Levitt, are doing quantity buying direct from the factory at a sizable discount, although sometimes a profit still goes to the local distributor. This compromise step has one major advantage, at least in the buying of heating plants and general equipment: the middleman is retained to service the equipment, a chore seldom relished by the builder. Despite this advantage of compromise, certain large builders have actually set up their own dealerships and are successfully providing their own service. Many have set up their own lumber yards, and several have even acquired their own stands of timber.

This redistribution of economic power—a budding trend which few have noticed and fewer still evaluated—may be the basic industry improvement which critics have long considered overdue. However, mass building is not a cure-all. It brings new problems of its own. For instance, it is questionable whether the average builder is yet qualified to take his place as an arbiter of design—the role which could fall to him if he gained greater control of manufactured items. Most important of all, some large-scale builders have found that over-enthusiasm for mass construction methods can prove a booby trap. Heavy equipment has often been purchased in order to eliminate subcontractors and keep the entire operation within the builder's control. But this equipment ups overhead and has to be kept constantly busy if it is not to eat up profits.

Improvement—today and tomorrow

Whatever the eventual outcome, the bigger scale of the builder's operation has already resulted in many improvements. The inclusion of equipment in the sales package is one such advance. The hiring of architects, feasible when the fee is spread over a number of units, is another. Advanced land planning, possible because of the large sites under development, is still another.

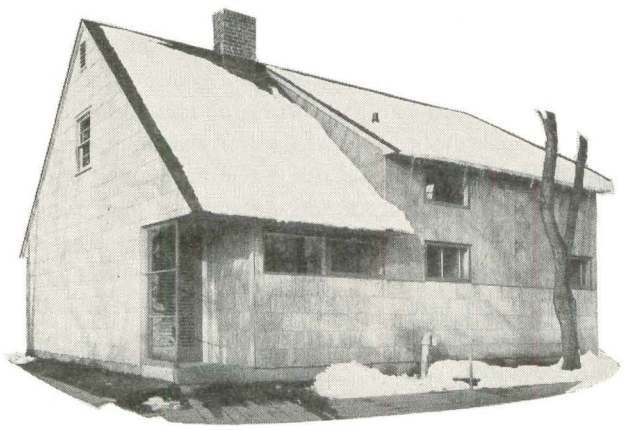
Despite these advantages, the small builder has by no means lost his place. Flexibility and lower overhead often enable him to match the big builder on costs. In buying small sites in built-up areas, he performs a function impossible for the large-scale operator. The small builder, however, is in the unenviable position of all small entrepreneurs in an economy tending more and more toward big business. As in other industries, it is from the large-scale operator that real advances in house construction may be expected in the future.

HOUSE BUILDERS BY SIZE: Three developers in suburban New York demonstrate how their methods, houses and approaches to the market are affected by their different scales of operation

One of the fundamental truisms that is most apt to be overlooked in any discussion of the "housebuilding industry" and its wrestle with the "low cost house" is that neither of these things exist as the entities which the discussion usually implies. In the zenith of mass production, housebuilding stands as the only surviving *local* industry of any consequence. So long as the house is attached to the land, it seems likely to remain so. While a Ford is a Ford is a Ford, a low cost house is one thing in Chicago, another in Minneapolis, still another in Tucson — and two very different things even in two adjoining Long Island developments (see below).

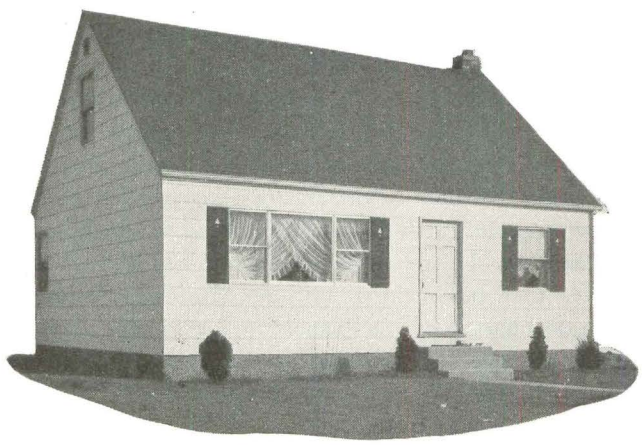
Like their product, the thousands of individual enterprisers who compose the "housebuilding industry" show an amazing diversity. They range all the way from the man who builds two houses a year to the man who builds 4,000. This great range in size is a rough index of an equally great variation in methods of operation. If there is one generalization that can be made about the majority of housebuilders, it is probably that, at the moment, they are all men who are making a brave effort to do the almost impossible. That is, confronted with a high number of fixed costs over which they have little or no control, they are nevertheless trying to reduce the price of their product.

Now the great variations which show in the "low cost house" start, of course, with such inflexible cost factors as the requirements of climate and end with such relatively more flexible factors as whether the builder gets a 10 or a 25 per cent discount on the retail price of lumber. The degree to which the housebuilder can control these more flexible cost factors seems to be in direct ratio to his size. This shows clearly in the case studies of three builders in New York's suburban market which are presented on the following pages.



4,000 HOUSES PER YEAR

The giant wallop of Levitt & Sons, Inc. (p. 84) has knocked down many of the costs which only yesterday seemed impregnable. By a vertical control which extends all the way to cutting lumber at their own California lumber mill, they have reduced the cost of almost every material item going into their house. By a system of so much work for so much pay, they have cut the cost of labor—a fixed cost for every builder who must pay union hourly rates. The great volume of their enterprise has also enabled the Levitts to devote themselves to management and to leave supervision to the foremen to whom it belongs. But Levitt-size mass production, as practiced in Long Island, is possible in only a few cities in the U. S.



200 HOUSES PER YEAR

Frank Homes Inc. (p. 94) has considerably less capital, less machinery and less time for management than the Levitts. The Franks have, however, about as much of these three fundamentals of mass production as the majority of housebuilders in the U. S. They are benefiting from some cost-cutting in the prices of the materials that go into their house, but still have the same labor cost per house as a man in the same district who builds only ten houses a year. This is because the Franks are not big enough to ignore the unions and their uniform hourly rates, as does Levitt, or, in alliance with other builders, to present a strong enough front to write an incentive system into union contracts. The Franks' project is near the Levitts' in Long Island.



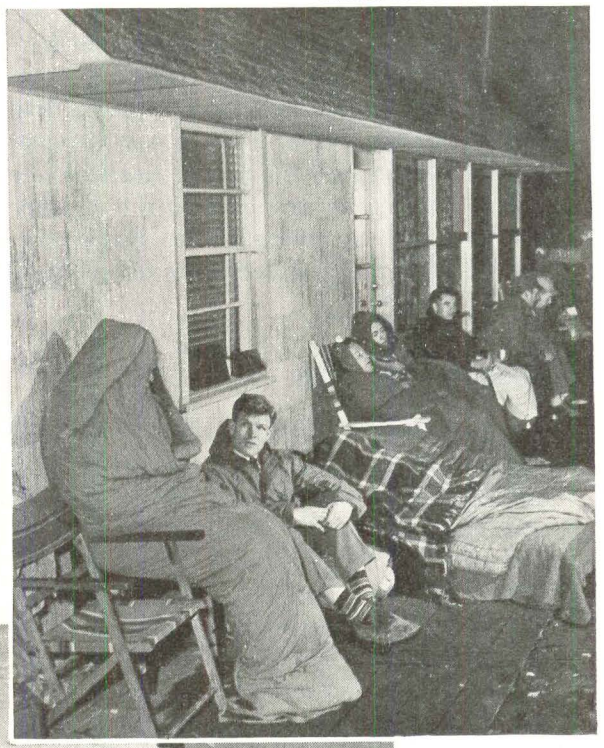
25 HOUSES PER YEAR

Jaquith and Smith, the two partners who own Suburban Properties, Inc. (p. 97), have to turn over their capital 14 times to build 25 houses a year. While the character of their small operation has secured them favorable terms from the money lenders, only its size registers with the material dealers. The partners pay only 7-10 per cent less than any casual customer who walks into a lumber yard. Since their size bars them from competing in the low cost field, their operation is geared to produce a bargain-priced luxury house. They serve a part of the market where higher costs are offset by higher profit per unit. But, their small size has one big advantage: they have been overlooked by the unions. They operate in suburban New Jersey.

4,000 HOUSES PER YEAR

LEVITT & SONS demonstrate the economies of the big builder's management, purchasing and production know-how. 1949 models feature modern design, packaged sales appeal and prices which defy competition

Photos: Drennan Photo Service





The customers camped outdoors for two nights.

Lucky ones signed 350 contracts in single day.

Roy Stevens



In early March, when the housebuilding industry as a whole felt the uneasy suspicion that the "seller's market" had reached its easily predictable end, the most spectacular buyers' stampede in the history of U. S. housebuilding took place on Long Island. In a three-day period, some 3,000 veterans lined up outside a model bungalow in the town of Roslyn to compete with each other for the privilege of putting a down payment on a house which did not yet exist. Several hundred of these determined buyers arrived with GI sleeping bags and camped outdoors for two days and two nights to ensure their place in line. All this may have been puzzling to the average newspaper reader, who had just begun to believe the housing shortage had been measurably eased. But to any member of the long-embattled and much-maligned housbuilding industry this unpalatable miracle was immediately clear: it was only those Long Island wonder boys, the Levitts, at it again.

If thousands of veterans in the New York metropolitan area regard the 20-year-old firm of Levitt & Sons, whose 1949 net profit should be over $2 million, as some kind of philanthropic enterprise, it is understandable that Levitts' competition tends to regard them with a mixture of envy and rage. For the Levitts, who started housebuilding in the depression and persuaded banks to make mortgages during the bank holiday of '33, have ever since been regularly accomplishing what the rank-and-file of the industry dismiss as impossible. That the firm is this year building an 800 sq. ft. bungalow (plus full expansion attic) equipped with electric range, refrigerator, steel kitchen cabinets, washing machine, 18 ft. double-glazed window and two-way fireplace to sell for $7,990 is only the latest and most spectacular of the kind of impossibilities on which the Levitts thrive.

President William Levitt answers the question of how they do it by pointing out (with the kind of assurance which has done nothing to endear the Levitts to their competitors) that it is literally impossible to avoid making millions of dollars by applying even a moderate amount of intelligence to the bundle of craft operations which are sometimes described as the "housebuilding industry." A number of other Nassau County housebuilders would answer the question by a stupefying tirade in which phrases like "open shop," "sharp materials buying," "smart alec stunts," "inferior construction" would be prominent. All of this might be, by a less impassioned hearer, boiled down to the single statement that the Levitts have broken almost every rule in an ancient and, in some quarters, venerable book.

As almost everybody knows, Levitt & Sons are the foremost example of volume and organization in an industry distinguished for neither. The history of their rise to this position of eminence is an account of a continuing assault on the conventions which seem to give the rest of the industry a comforting, if illusory, sense of security. All three of the Levitts—father Abraham and sons William and Alfred—fully enjoy their role as a burr in the hide of the housebuilding industry. They have not neglected to use their formidable



Thomas Airviews

Levittown will be three times this big by 1950

gifts of gab (which Alfred says comes from a Rabbinical grandfather) to keep both the public and the industry fully informed of their progress in making the old nag gallop.

Smack in the middle of the flat belly of Long Island, with the green polo fields of Oyster Bay to the North and Mr. Moses' miraculous Jones Beach only nine miles to the South, sits Levittown. Like the firm which built it, this city is like nothing the U. S. has ever seen before. Two years ago it was a potato farm. When the Levitts finish this year's building program, it will be the biggest municipality on Long Island—a town of around 32,000 men, women and children.

If you drive out the Hempstead Turnpike, you will pass through considerable acreage still in potatoes. Then suddenly the horizon darkens, and a whole city of bungalows rises abruptly into view. If you were to turn aside to explore this phenomenon, the drive through would have a curious dreamlike quality of endlessness and timelessness. You could go literally miles in any direction without reaching the end of these impassive rows of little houses. There are 6,000 of them and they are as identical as so many Ford cars parked on some giant parking lot.

The bungalow that is multiplied 6,000 times is a much better-than-average version of that darling of the depression decade—builder's Cape Cod. It has a front door in the center and a shuttered window on either side. It is painted in tasteful colors which pointedly do not duplicate those of its neighbors. The steep pitch of the roof plus a second-story window in both side walls betoken an "expansion attic." The house sits low (the professional would note that the slab foundation suggests radiant heating) and its proportions are considerably more pleasing than most of its variety.

Like their houses, Levittown's inhabitants, glimpsed on their way to and from the supermarket in the heart of the community, have an eerie similarity. The men all look about the same age; there is something military about both their stride and their overcoats. The women are pretty; they would all be inconspicuous on a state university campus. Each set of parents has exactly two offspring in tow, and the offspring are, respectively, exactly 32 and 36 in. high.

If appalled students of neighborhood planning have suggested that the introduction of, say, a 3-bedroom house might have mercifully broken the 6,000 identical roof lines or added a third party to the standard ratio of two offspring per bungalow, the Levitts have merely pointed to the expansion attic—and to their price tag of $7,990 or $65 a month on the 4,000 bungalows held for rent. The Levitts are neither oblivious to, nor apologetic about the complete uniformity of their giant neighborhood. Alfred Levitt, the younger brother and vice-president in charge of design and construction, puts it this way:

"We are constantly criticized because we have sacrificed 'esthetic' considerations to ease of production. But ease of production is basic in providing a house for what people can afford to pay. The petty error inherent in every slight variation in an operation of this size

and speed is so expensive as to rule out all but imperative variations. Why, it took us a long time to teach even staggered set-backs [25 to 45 ft.]. Show us the way to produce better site plans, more varied houses, without slowing us down! We know there's plenty to be done, but instead of introducing more varied appeal into either our houses or our site plan at the present time, we would prefer to cut the price to reach a still lower income group."

It is hard to argue with this point of view—especially since Levitts' competition has been unable to produce anything comparable to their house without adding a thousand dollars to the price and exactly nothing to its esthetic appeal. But when the 6,000th identical bungalow popped into place in Levittown late last fall, FHA, which had underwritten all mortgages, began to feel that this overgrown neighborhood had better grow no bigger. The Levitts, who had been buying up all the surrounding land they could get their hands on, felt quite otherwise. By the year's end, FHA was still worrying about "market saturation." Then the Levitts, as usual, came up with the clincher. They had been working for 12 months on a complete redesign of their Cape Cod bungalow, and in January they opened a model house. They bought not one inch of advertising space, merely put up a small sign in the front yard reading: "$7,990—$90 down and $58 per month—Veterans only." The size and enthusiasm of the crowds who turned out to go through the house quickly convinced FHA that the market, whatever else it might be, was distinctly not saturated with anything resembling a bargain. Levitt immediately scheduled 4,000 of the new bungalows, all to be finished by December, 1949.



$7,990 HOUSE is opened to rear terrace by 16 ft. double-glazed window. Front views on page opposite show roofed entrance, sheltered by glass windbreak, and one of the five possible variations in rafter cuts which break uniformity of house facades. Houses are also varied by choice of boarding or asphalt shingles and by color.

$50,000 WORTH OF DESIGN STUDY introduced an open plan, a two-way fireplace and double-glazing

By "basic re-design" of their original Cape Cod house, the Levitts do not mean drawing lines on tissue paper. It is their custom to design by building and ripping, building and ripping again. The new 1949 house was ripped apart at least 30 times, and the Levitts figure they spent $50,000 on its plan. "We don't follow a recipe," says Alfred Levitt, a designer who taught himself architecture by 20 years of hard work. "We build by taste, like a good cook. We carry every dimension in our head. When we are all finished, we draw up the plans and file them with the building department."

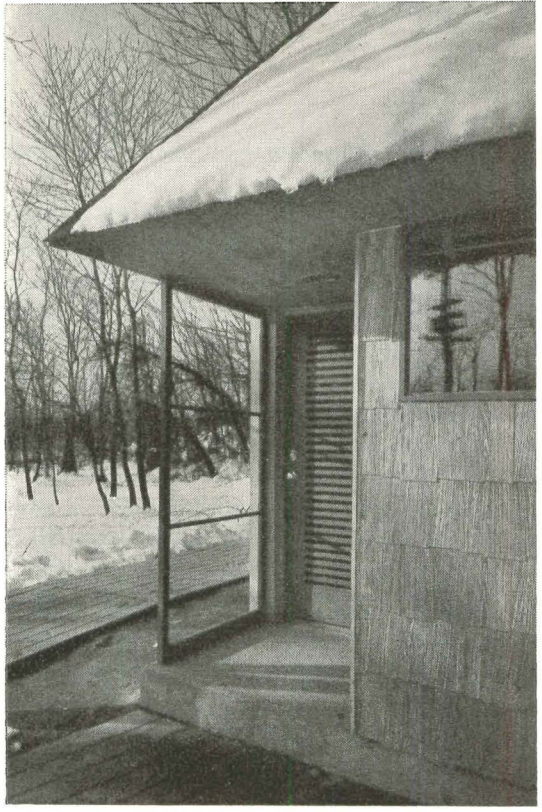
The result was a plan considerably more open than that of the original house, which differed in no important way from the standard FHA low cost plan. Doors and windows were placed at logical points in the new plan, and the symmetrical facade which stands for Cape Cod was finally abandoned. The expansion attic was, however, retained. "There is no cheaper way to extend space than the cheap space upstairs," Alfred says. "The modern architect, enraptured by the flat roof, doesn't do very well in thinking out the question of future expansion. He puts a neat row of dotted lines on his plan without figuring out the cost of extending foundations, etc. We have no cost upstairs but the finishing. It's a matter of hundreds of dollars as compared with the thousands involved in expansion in any other direction."

Alfred started the 1949 house by simply turning the 1947 plan around; he put the living room at the back of the house and boldly opened the front door into the kitchen. This reversal made it possible to bring the sewage pipe straight out at the front—in the old plan it had to cross under the house. With the living room at the rear, a wall-size, double-glazed window was a natural step. Alfred figured out one day that a house wall—shingling, paper, insulation, plaster board etc.—costs 25 cents a ft.—or exactly the same amount as a square foot of double-glazing. This simple bit of arithmetic was responsible for the largest single order in the material's short history, and the only order which has so far gone into low-cost housing.

"Then," Alfred recalls, "we decided to borrow from Frank Lloyd Wright and put in a fireplace as the central pivot of the plan. We plotted circulation around the chimney, and made the kitchen a control station from which the housewife can easily reach any part of the house. We don't like a freezing cold kitchen of white appliances —we warmed up the walls with dark green paint. The street door leading through the kitchen is hung so as to form an entrance foyer when the movable wall section is swung into the kitchen. The milkman and the boss coming to dinner will both use this door, of course. But in a little house you don't want the milkman going around to the back, past the bedrooms; it interferes with privacy." The open plan, double-glazed window and fireplace together cut dollars off the heating bill, and the Levitts figure that the radiant heating system will have to be used only four to five months of the year.

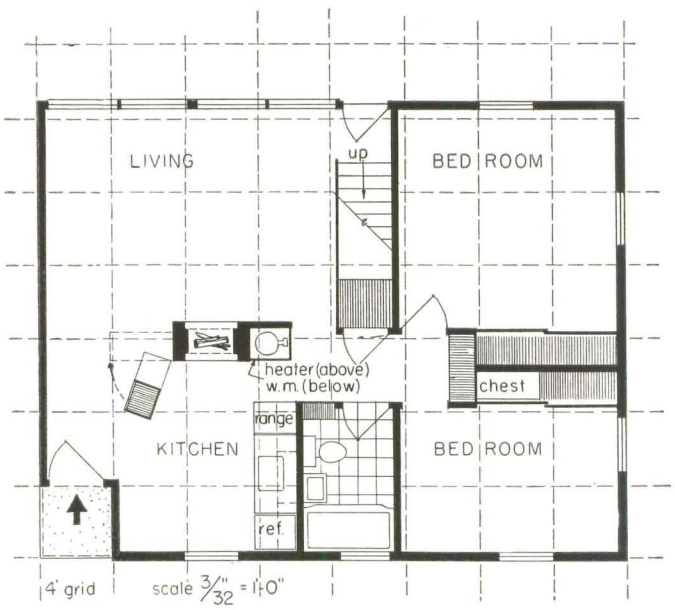
The new house is, of course, full of built-in equipment—the Levitt trademark of a completely equipped kitchen has now been extended to a bedroom storage wall that replaces bureaus, while the movable wall section near the front door provides a pull-down desk and that rarity in a low cost house, a guest coat closet. While it would be hard to say whether the washing machine or the two-way fireplace does the most to endear the house to the buyer's heart, the whole package is an interesting equation between the maximum in merchandising appeal that can be built into a house and an extremely well-handled minimum of square footage.

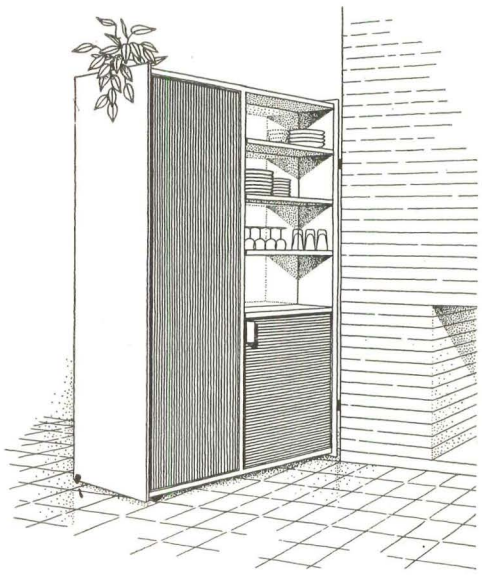
Alfred sums up the firm's philosophy this way: "We have to figure out how fast the public can buy back our product when we figure how much we can put into it. These estimates are delicate and variable. There's no point in trying to do something unless it can be handed out to the great mass of people as a cultural increase. The $7,990 for which we sell our house is a device by which a few thoughts of the progressive architects can be given to the public."

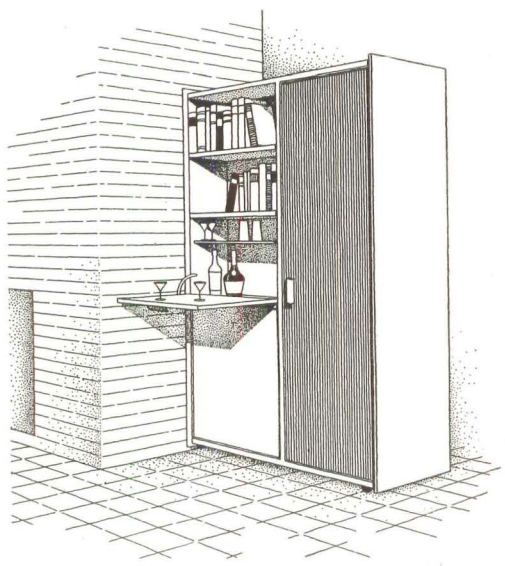




Photos: Ben Schnall

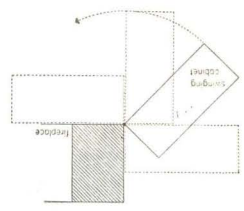




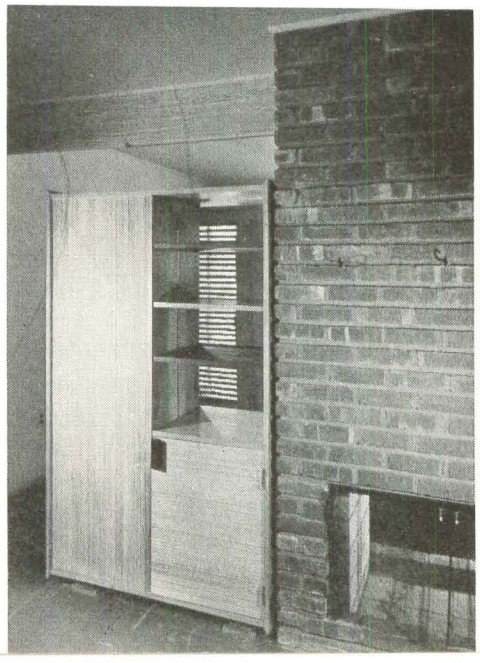


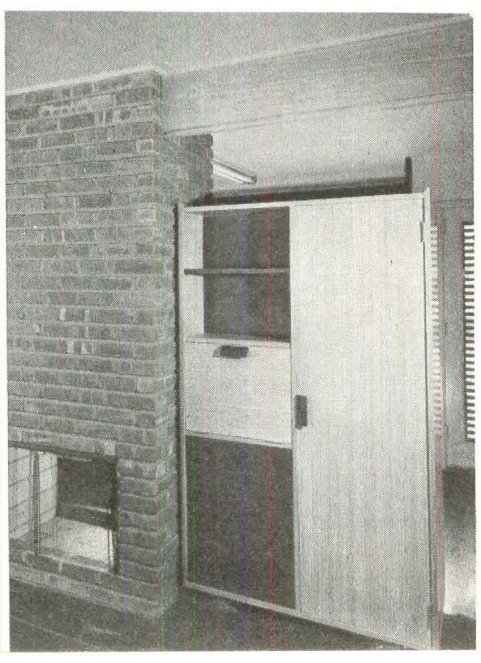
FIREPLACE is pivot of circulation, as it was in early American Cape Cod house. Furnace is lifted off floor and hung above washer, opening kitchen circulation to bedroom area. Hall off kitchen functions as laundry, with understair closet for brooms, etc. and another closet for linen. Louvered sliding doors enclose bedroom storage wall.

MOVABLE STORAGE WALL is hinged to fireplace. Swung into kitchen, it screens path of entry. Swung into living room, it gives more play space for children. Detailed by Jens Risom, it holds guest coat closet, pull-down desk or bar, shelves for books and dishes.



CONSTRUCTION OUTLINE: Foundation—poured concrete, North Shore Supply Co. STRUCTURE: Exterior walls—asbestos shingles, Johns-Manville Corp., sheathing and insulation, Gilman Bros.; inside — studs and Sheetrock, U. S. Gypsum Co. ROOFING—asphalt shingles. INSULATION — Johns-Manville Corp. and Gilman Bros. FIREPLACE: Damper — Bennett-Ireland, Inc. WINDOWS: Sash—wood. Weatherstripping—A. B. Brown, Inc. Glass — Thermopane, Libbey-Owens-Ford Glass Co. Venetian blinds — Flexalum slats, Hunter Douglas Corp. FINISH FLOORING—Kentile, David E. Kennedy. WALL COVERINGS: Main rooms — Sheetrock, U. S. Gypsum Co. Bathrooms — Sheetrock and Lifewall, Pantasote Co. PAINTS—Cheesman Elliot Co. HARDWARE—Sargent & Co. ELECTRICAL FIXTURES—Lightolier Co. KITCHEN EQUIPMENT: Range and refrigerator—General Electric Co. Sink and cabinets—Tracy Mfg. Co. Fan—Fasco Industries, Inc. WASHING MACHINE—Bendix Home Appliances, Inc. BATHOOM EQUIPMENT—Briggs Mfg. Co. Cabinets—Tracy Mfg. Co. and Ketchum Mfg. Co. HEATING—hot water, radiant panel system. Boiler and burner —General Electric Co. Thermostat—Perfex Co.





Recipe for a mass produced house: capital, machinery and intelligent management

Back of the 4,000 houses which Levitt will build this year is an organization which meshes planning, purchasing, financing and production like so many continuous gears. To this massive machine, synchronized at incredible speed and precision, the Levitt brothers are as two amiable dynamos. Bill is the public figure: it is he who appears, accompanied by 200 belligerent veterans at meetings where the Hempstead Town Board backs down on, say, its objection to basementless construction. It is Bill who gets three banks, a mortgage broker and the construction superintendent on a single telephone hook-up to arrange in five minutes a closing date for 600 mortgages. It is Bill who appears at the demonstration house to pacify the mob of clamoring customers with free coffee and doughnuts, who talks tough to the material suppliers and holds the reigns of a dozen operations ranging from land assembly to Levittown bus transit in one efficient fist.

In the firm it is customary to refer to Alfred as the "dreamer," and it is true that Alfred has a tendency to avoid both public and press and to wake up at three o'clock in the morning with an idea for a movable storage wall. But it would be hard to find another "dreamer" with Alfred's knack for winning an argument. A case in point: the conspicuous absence of a garage in the Levitt house. "I had to fight father, brother and the head of the sales department on the garage business," Alfred says. "Until people are decently housed, I believe we have no moral right to house autos. We would much rather build that 16 ft. window. There's an unpierced wall on the entrance side—this is an invitation to build an attached garage."

Both Bill and Alfred share a kind of efficient impatience. They know how to pick up a phone and get action; they hate memorandums and lengthy conferences, the abracadabra of big business. This has led to the utmost simplification of the paper work that sometimes zooms the big builder's overhead. They handle the matter of the buyer's contract, sometimes considered a delicate operation involving several attorneys and possibly a psychiatrist, with the aplomb of a supermarket cashier. Simple contract forms, each stamped with a fixed title date (they've never missed one), enable two clerks to sign up 350 house buyers in one day. The only other appearance the buyer makes before he moves into his house is to sign the mortgage at the office of J. Halperin, a Jamaica mortgage broker whom Levitt uses chiefly to absorb loan paper work.

Bill is the public figure . . .

Morris Engel



This same impatience greatly assisted the Levitts' attack on what seemed to them remarkably cumbersome ways of doing business. While the small housebuilder may need a bevy of subcontractors, the assistance of the craft unions in recruiting labor which he cannot regularly employ, and the warehousing and credit aids of building material dealers, the Levitts very quickly discovered that the mass builder does not. These time-honored practices—which are really devices for pooling the capital risk of the building business—become handicaps to a firm in a favorable capital position for undertaking mass production. The Levitts have such a capital position. In addition to their own resources, they boast the largest line of credit (Bank of Manhattan Co.) ever offered to a privately-owned corporation. This abundant capital financing and the perpetual and gigantic market guaranteed by New York suburban expansion have enabled the Levitts to make basic changes in each major part of the house-building operation.

Since the New York suburban market is the unique property of New York suburban builders, the operating methods which the Levitts have developed to conspicuous efficiency are not equally applicable to the problem of building a low cost house anywhere else. But the Levitts believe—and there is much to support their confidence—that their methods provide at least a rough pattern by which better houses at less cost might be built in any urban area in the U. S.

Levitts think no kind of factory fabrication can beat their precutting and site assembly method

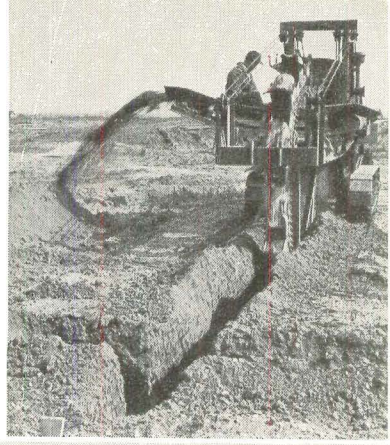
When Levitt operations are in full swing, houses are finished at the rate of one every 16 minutes. This kind of speed is the result of Levitt's well-known system of mass production which, reversing the dream of making a house in a factory, makes a factory of the whole building site. Levitt believes it is quicker and cheaper to apply the continuous principle of mass production by moving crews of men in standardized operations over the site than it is to move the house itself along a factory assembly line. The system, of course, depends on the most minute breakdown of site operations. The 26 major construction operations—starting with digging house footings and ending with painting—are further subdivided into simple standardized steps, each handled by a specially trained crew. This breakdown extends even to such details as installing the washing machine: one man does nothing but fix the bolts in the floor, another follows to attach the machine. The breakdown also differentiates steps according to the degree of skill required. One crew, for example, puts up wall framing; another, more skilled, frames the roof, making the special rafter cuts which determine the five facade variations employed in the $7,990 house. It has been estimated that the average building worker spends 25 per cent of his time figuring out what to do next. In the Levitt operation this percentage must be close to zero.

Although the Levittown site is dotted with about $1 million worth of power-driven machinery ranging from trenching machines to spray guns, you will never see a saw on the construction job. Shop precutting of all house parts and shop pre-assembly of plumbing and heating are basic in this system. Freight cars loaded with lumber come straight into a cutting yard in Roslyn, nine miles from Levittown. Here one man with a power saw cuts the parts for ten houses in one day. These are bundled—each package containing all the lumber parts for one house—and picked up by fork-lift trucks for reloading and delivery to the building site. Precutting extends even to the chrome molding in the bathroom; corner fillers are provided in case the house is slightly out of line.

Next to the cutting yard is the plumbing shop. Freight cars unload



Levitts own two giant concrete hoppers



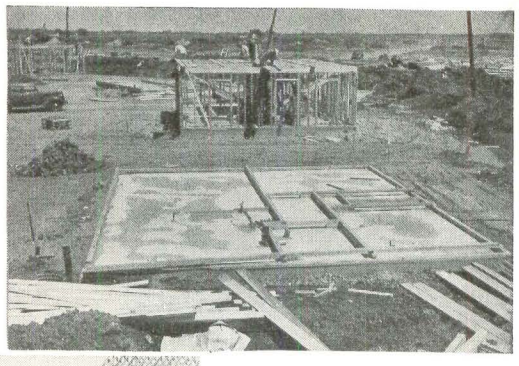
Trenching machine digs 30 house foundations a day



Radiant heating coil installation: one man-hour

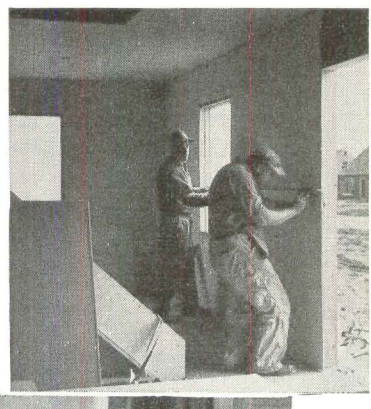


Slab poured: three man-hours



Sills are laid

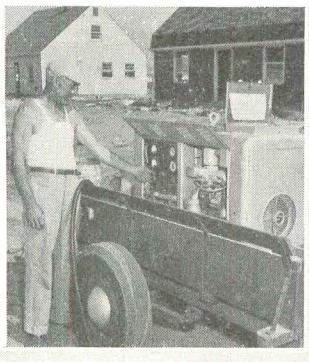
Interior dry wall applied

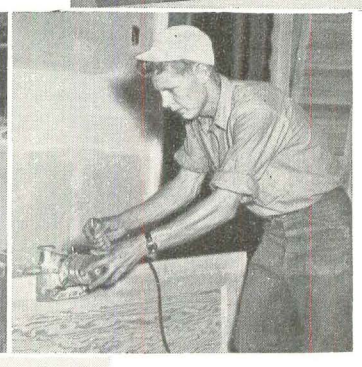


Four men with power saws work from each portable generator

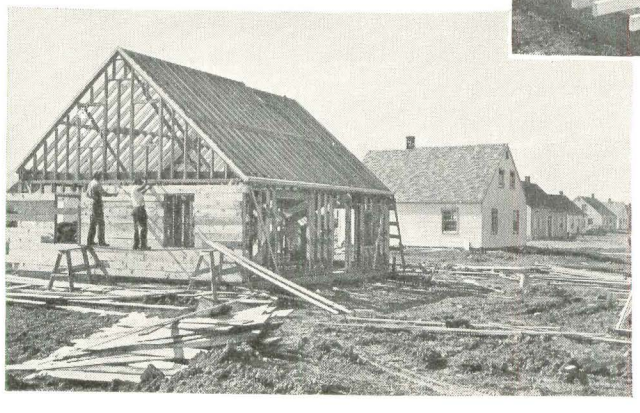


Framing takes 60 man-hours

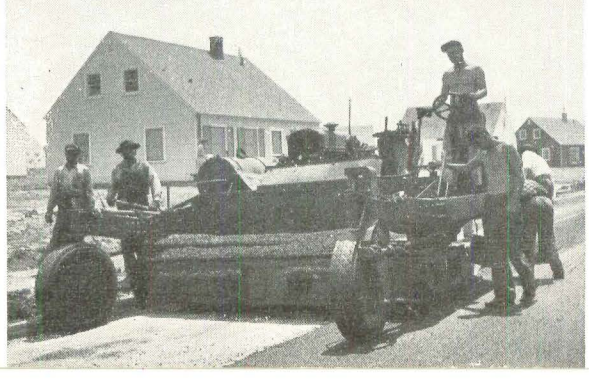




Sheathing takes 36 man-hours



Road top applied



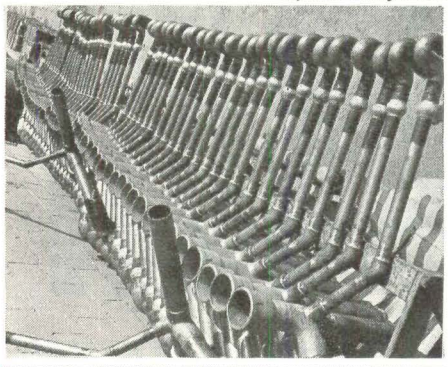
Photos: Anthony Linck, Life; George J. Karas, Life; William W. Thomas and William Noyes.

plumbing parts at one side; out the door at the other go 50 plumbing trees a day (one man-hour per assembly). Copper coils for the radiant heating installation are measured, cut, pre-shaped and bundled. Two great concrete hoppers keep a fleet of transit-mix trucks running. From the big tents which serve as warehouses at the building site, workmen roll out bathtubs, washers, refrigerators, etc., to be dropped, one by one, at house doors. All these operations are timed so that each component of a house arrives at a precise time and a precise spot—with no margin for error.

Lustron's Carl Strandlund, who can step out of his office and look over several acres of the most efficient mass production machinery in the U. S., might be somewhat amused by such Levitt shop fabrication tricks as measuring the heating coils by twisting them around two barrels set a few yards apart. But the Levitts are convinced that factory production cannot beat, or even equal, their simple system of precutting and pre-assembly. "You can't prefabricate the land," says Bill, "and since the house, however made, eventually has to be conveyed and attached to the land, the housebuilding process is likely to remain quite different from that continually cited examplar—the automobile industry."

Levitt's inexpensive shop labor results in impressive man-hour reductions at the site. Samples: installation of radiant heating coils, one man-hour; calking in rough plumbing assembly, three to four man-hours; pouring slab (automatic troweler) one hour; framing, 45 man-hours; sheathing, 40 man-hours; installation of plumbing fixtures, four man-hours.

Life: Anthony Linck



SHOP PRECUTTING of lumber and pre-assembly of plumbing are basic in system.



The incentive system—or more pay for more work —provides cost control and labor supervision

One of the basic keys to the Levitt operation is the position of the subcontractor, who is both an independent enterpriser and a Levitt foreman. This seeming paradox is actually an ingenious device for relieving the Levitt organization of a great part of the burden of cost control and of labor supervision. It has the equally important effect of ensuring, simply by its own momentum, the fastest possible building rate.

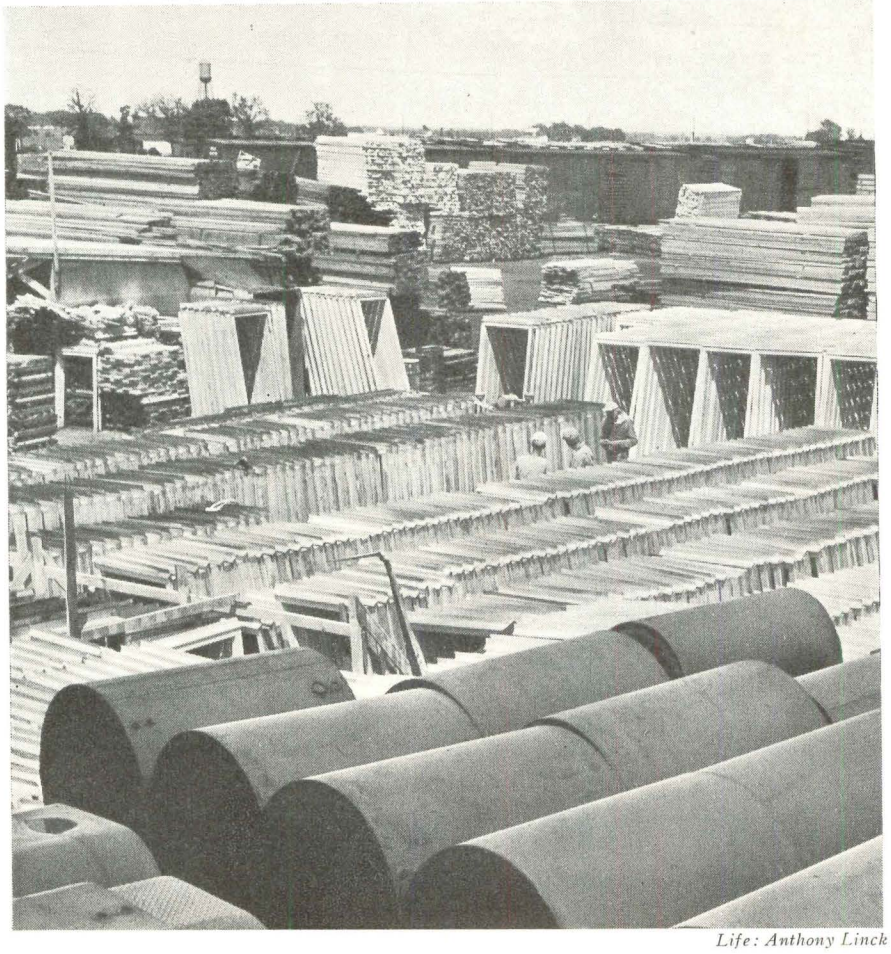
Practically all subcontractors are former employees, whom Levitt has set up in business. There is a subcontractor for every one of the major construction operations and he has complete responsibility for hiring, paying, and supervising labor for that part of the job. (Of the total payroll of 4,000, only 10 per cent is paid directly by Levitt.) He is a bigger business man than most independent housebuilders. The carpentry subcontractor, for instance, collects about $40,000 a week. Levitt provides him with machinery and a measured amount of materials (if he runs out of nails, Levitt wants to know why). Although he holds no written contract, he knows that he can work for Levitt as long as he meets his part of the schedule.

The subcontractor's price for his job is fixed at the beginning of each season at so much per house. This price is composed of two factors: Levitt's estimate of the number of man hours required for the operation and the subcontractor's allowance for overhead (timekeeping and insurance are the main part) and profit. This is an experimental price for the first 50 houses; then it becomes a fixed price. Thus Levitt has the incomparable advantage of fixed cost for the whole building job, while the subcontractor increases his profit as he increases his efficiency. All subcontractors are closely checked by the 60 superintendents on Levitt's own payroll.

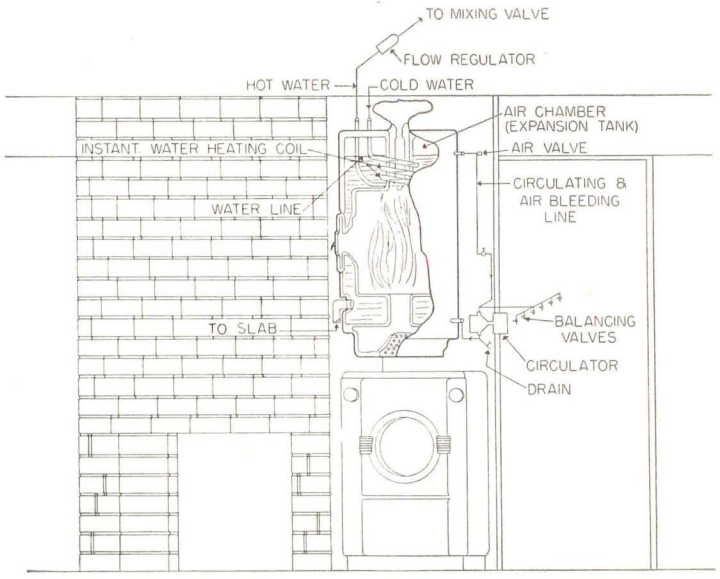
The incentive system which enables Levitt's subcontractors to set their own profit also enables their building workers to set their own earnings. The company operates open shop, and its system of extra pay for extra accomplishment provides better-than-union earnings for almost all workmen. The Levitts regard their management-labor relations as a "happy marriage," and, with an eye on the ever-present threat of trouble from the jealous Long Island locals, prefer to maintain a discreet silence on the whole subject. The closest they have come to labor trouble was when one union picketed the Levittown job for six months in 1947. This had not the slighest effect on the 4,000 workmen on the job, who are sure of steady work for at least nine months out of the year, at which they earn enough to go south for a vacation in the off months.

Rate of pay is computed on the basis of a minimum daily output. For example, the Levitts figure that it should take a crew of four men not more than 15 hours to frame a house, and this fixes minimum daily earnings, which are about the same as union hourly scales. Practically all workers do much better than these minimum quotas and, accordingly, take home more money. Some prefer to knock out their quota before 3 p. m. and take off for Jones Beach. Workers are divided into crews according to skill, and the more skilled groups have a higher basic rate of pay.

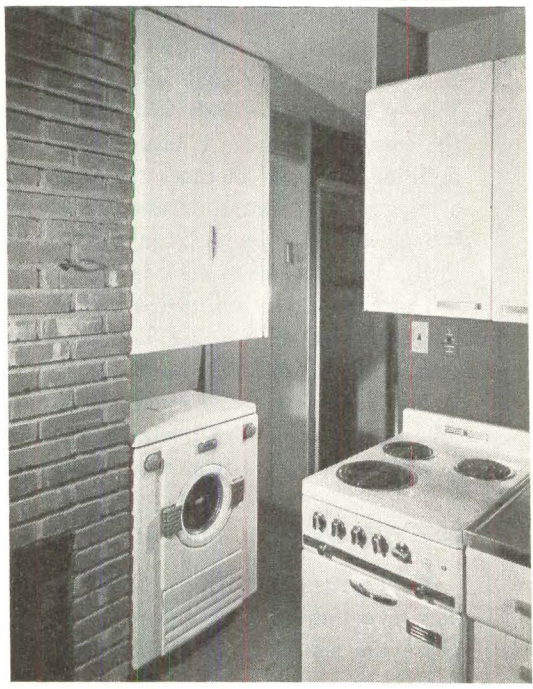
While the craft building unions, entrenched behind spread-the-work restrictions, like to paint the Levitt incentive pay system as a speed-up, this is wildly inaccurate. The Levitts are not in the least concerned with pinching pennies on labor; their concern is with the millions of dollars involved in meeting their tight construction schedule. The incentive system ensures that each workman will meet his part of the schedule with a minimum of costly supervision, while the open shop frees Levitt from the jurisdictional strikes and other work stoppages which could cost millions in an operation of this size.



Life: Anthony Linck



Ben Schnall



HEATING UNIT has been especially designed for overhead installation. It is supported at 4 ft. level by steel members welded to the boiler. Expansion tank and instantaneous hot water heater are integral parts.

$5 million stockpile measures a buying power which has cut down many a mark-up

Long before they launched Levittown, which pushed them into No. 1 position as the housebuilder manufacturers would most like to hold hands with, the Levitts had become discontented with the method by which materials are conveyed from producer to housebuilder. This is by a kind of bucket-brigade—from manufacturer to wholesaler to dealer to builder—which, Bill Levitt contends, adds about 100 per cent in mark-up to the cost of manufacturing the item. In 1935 the Levitts moved to eliminate one of this series of mark-ups by setting up the North Shore Supply Co. and they have been noisily hacking away at the others ever since.

North Shore, a building materials "dealer" whose sole customer is Levitt, was originally established to buy lumber, and the Levitts brought in an established Long Island lumber yard dealer to run the operation. Now North Shore no longer buys lumber—last year the Levitts bought about 300 million feet in standing timber and set up their own lumber mill in Blue Lake, Calif. (from which they sell redwood to housebuilder Fritz Burns). North Shore now has six buyers who deal directly with the manufacturers of almost all the materials and equipment which go into the houses. This brings 40 freight cars a day to the North Shore yard and to the Levittown site and makes Levitt the Long Island Railroad's biggest customer. (There is no connection between this and that railroad's recent bankruptcy as some of the manufacturers who no longer sell Levitt have a tendency to assume.)

To show why he thinks middlemen perform no service for the big housebuilder, Bill usually tells the story of his purchase of 4,000 kitchen cabinets. "The cabinets were shipped direct. We received the shipping notice, and we had to trace the cars. We paid the distributor 10 days after shipment—but the distributor was not obliged to pay the manufacturer until 30 days after shipment. For the single service of mailing out an invoice, the distributor realized $150,000."

Manufacturers find Bill a formidable customer, fully aware of the weight he can throw around. He can find any number of ways to whittle down a wholesale mark-up. After some hours of unsuccessful wrangling over the wholesaler's price on one equipment item, Bill picked up the itemized price statement and glared at a $15 charge for "installation." "Cross that out," he commanded, "we can do the installation at a cost of $3 per unit. And, while you're at it, cross out that $5 charge for 'demonstration.' Our houses go up so fast that the families have been using the equipment for weeks before your demonstrator gets around." This was a neat net saving of $68,000.

Plumbing is one major item on which Levitt's campaign has had little effect. There is a "North Shore Plumbing Co." and the firm's chief mechanical engineer is considered by jobbers a "master plumber." Beyond that, Levitt has so far been unable to go. But Bill says confidently: "As soon as a sign shows up of a little business recession, we'll crack the plumbing, too."

In the pattern established by Sears-Roebuck, Levitt now occupies 100 per cent of the production capacity of several independently owned firms. One of these is a New Jersey company, which supplies pre-assembled stairways, storage walls and all other cabinet work. Other firms are kept busy the year round supplying doors and sash.

Levitt's pre-eminence as a customer has already produced some interesting changes in product design. Alfred thought the enameled top of the washer was lost as kitchen working space, and proposed a stainless steel top. This is now in production on Levitt order, and Alfred thinks it may become a standard item on the general market.

Since the Levitts spend more money on product design and study than has ever before been spent on the small house, anybody with a new idea is likely to ask their help in getting it into production. One such invention is a new kind of expansion nail. Alfred says this "really works" and will enable them to use gypsum siding for sheathing purposes instead of the boarding now used. This will cut more than a quarter million from the cost of construction.

Levitt's overhead for sales and advertising is 1/5 of one per cent, and this year he is cutting out even newspaper advertising, heretofore considered market insurance for the more expensive houses. Bill says: "Since we've been in business, I've pulled all kinds of stunts. I've wrapped a house in cellophane, I've promoted the American Home, the Dream Home and every other kind of Home. Now I know it was all pretty well wasted. You've got to have the merchandise. If you have, they'll come and get it." One pat measure of the Levitt emphasis on product instead of promotion is the fact that the firm employes 90 engineers but only six salesmen.

The firm believes in bolstering the merchandising appeal built into its product by putting a heavy investment in neighborhood stabilization. "Father has always been the great neighborhood man," Alfred says. "In all our developments, he always got a swimming pool and meeting house in right away and landscaped to beat hell." In Levittown, there will be one swimming pool for every 1,000 families (this is a $175 item included in every $7,990 price tag) and a shopping center for every 2,000. Shopping centers, each one producing about $190,000 in yearly rent, will all be held for Levitt grandchildren. Two of these are already full of thriving businesses (non-chain) and the corner drug store is taking in a half-million a year. This year's building program includes two more local shopping centers, while a bigger one, fronting on the turnpike, will have a department store branch as main lessee. Land for four schools was sold at cost and Levitt donated sites to a dozen churches.

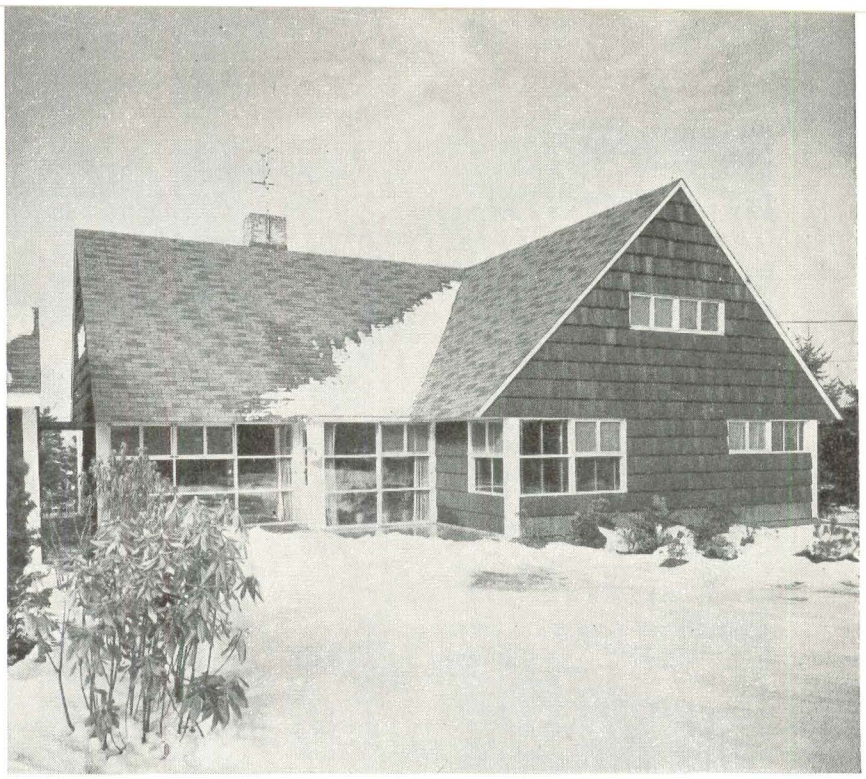
The sizable expenditure for trees and shrubs does not show up much yet, for landscaping, like everything else, is a mass production operation and only bare root material is used. Planting is limited to the spring and fall, and some 300 houses are planted in a single day. "Wait till you see Levittown when 40,000 apple and cherry trees are in bloom five years from now," says Bill.

The bankers come and get it, too

The Levitts take the same come-and-get it attitude with bankers that they take with house customers. This year's mortgages on the $7,990 house are selling at a 3-point premium, with the Bowery Savings Bank taking about 2,500 and three other banks splitting the rest. "We don't ask any favors," says Bill. "The banks know we're not operating a crap game. That's what the building business is, by and large. Sometimes they shoot craps on a table; sometimes they don't even have a table." While it is obvious that Levittown owes its giant size to the tonic of FHA-insurance and VA-guarantees, it is also true that Levitt has never had the slightest difficulty in placing non-government backed loans. The Prudential Life Insurance Co., which made loans on the Levitts' various Strathmores (suburban luxury at a bargain basement price), has never had a foreclosure on a Levitt house.

Seller's market, buyer's market, inflation, recession—they are all one to the Levitts. "When prices drop, our prices will slide along with them. No matter what the business weather, people will always need houses and we figure we'll always be able to build them at a price the big market can afford. The population graphs indicate that there will be a 2 million population in Nassau County by 1980—that's 1½ million to go."

Sometimes the Levitts get restless because they have no competition. Having accomplished most of the impossibles (the proposed statewide performance code is next on Bill's list), they find that things are now almost too easy to be interesting. Thus when the Israeli government asked them to come over and help out on housing, the Levitts jumped at the chance. Their enthusiasm for the job was only increased when they found out that Palestine lacks even building sand and makes concrete by chipping rock out of the Carmel mountains. The Levitts expect to start soon on 5,000 concrete apartments on a poppy-covered hillside overlooking Haifa bay, and they're raising American money to bank the deal. "The Negev," says Alfred thoughtfully, "is only a little smaller than Nassau County."

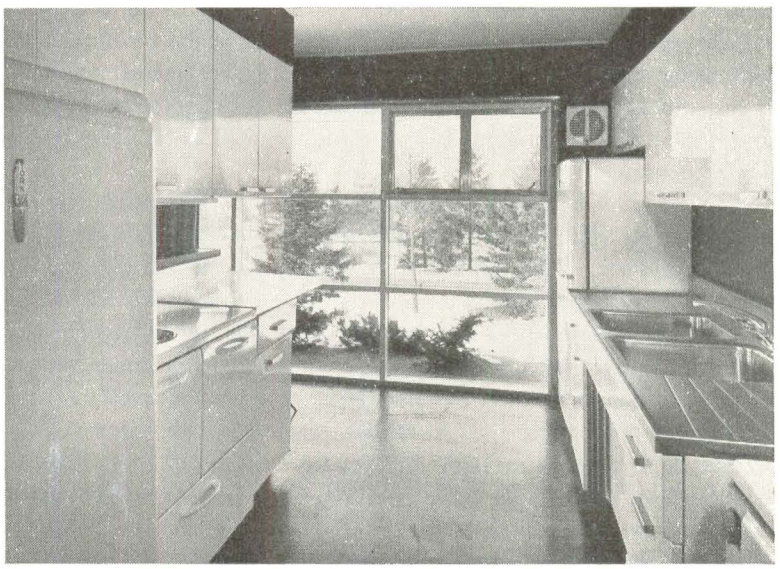


LEVITT $19,500 HOUSE uses a remarkably open plan to provide "class market" luxury at a bargain price

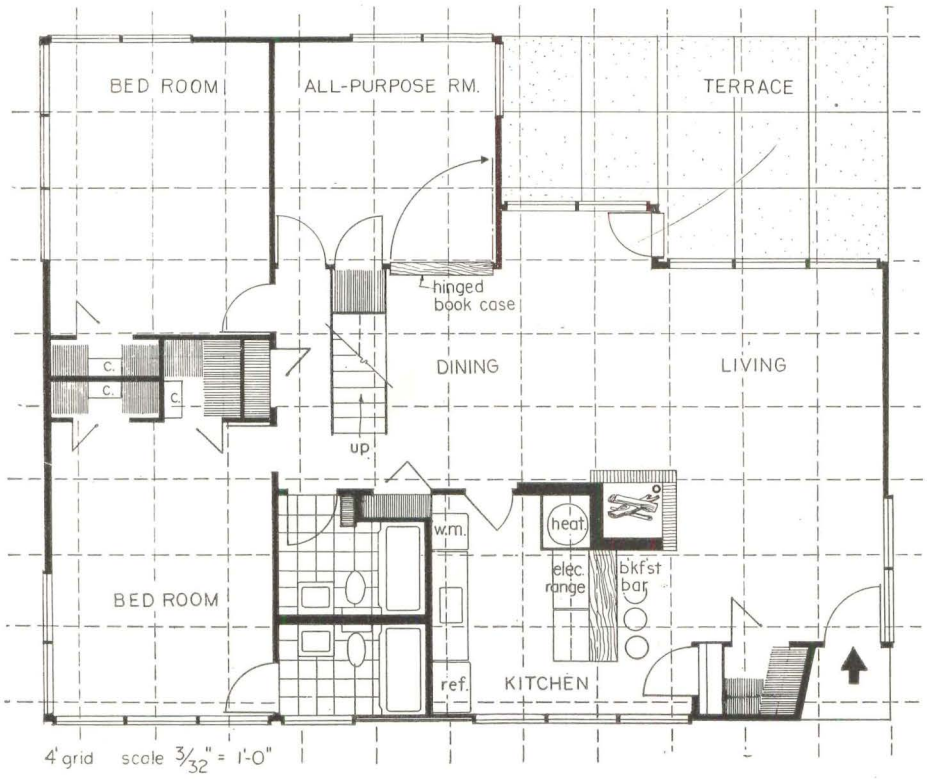
In addition to 4,000 low cost houses, the Levitts will build about 400 houses for the "class" market this year. These houses will all have the basic plan shown on the page opposite and are priced at $17,500 (storage attic), $18,990 (partial expansion attic) and $19,500 (full expansion attic). All parts for these high-priced houses are precut, and site operations are nearly as systematized as those at Levittown. But finished houses will scarcely betray this cost-cutting standardization. Twelve variations are possible by reversing floor plan and by changing placement of garage. Notable Levitt trick: garage is closely related to house, but not attached; thus house framing does not have to be varied according to garage placement.

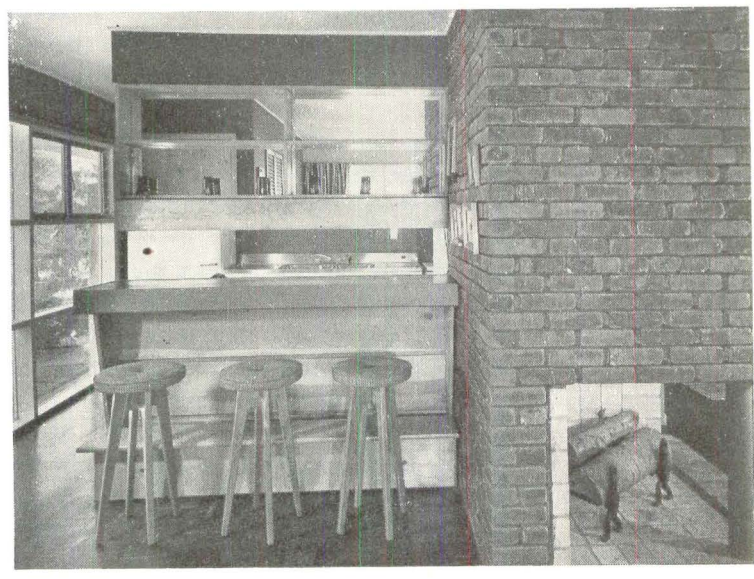
The plan is simply an elaboration and enlargement of the plan developed for the $7,990 house. It is much more open than has been generally considered safe for speculative building in this price class. No door, for example, separates the kitchen from the entrance and living room; no space is put into halls as such — the stair screens bedroom circulation; a movable wall section can be used to open further the general living area. All houses Levitt can possibly build this year are already sold — snapped up by crowds who went through unadvertised model house.

CONSTRUCTION OUTLINE (Large house). Specifications are similar to those for small house, p. 87, except as follows: Exterior walls—redwood siding, fieldstone or brick. WEATHERSTRIPPING—A.B.C. Steel Equipment Co. DOORS—Para Equipment Co. Garage doors—Berry Co. BOILER—York-Shipley, Inc. and Timken Silent Automatic Div., Timken Detroit Axle Co.

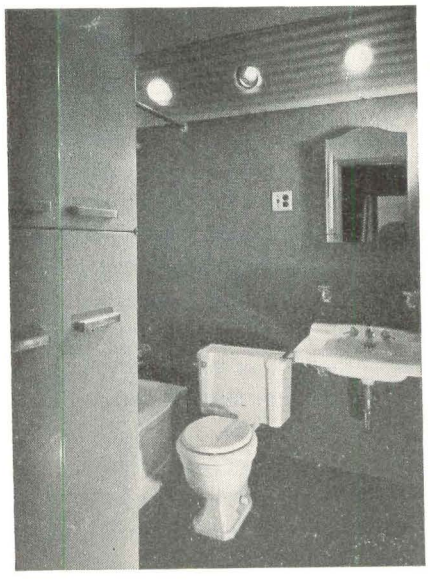






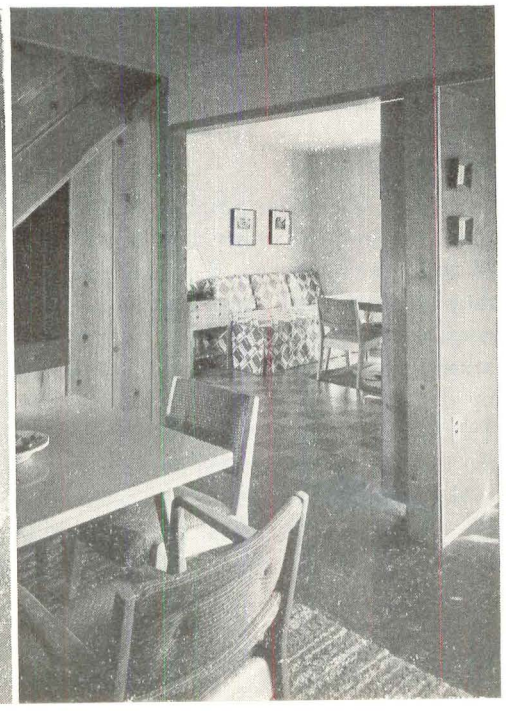


Pivotal placement of fireplace is economic of space; flue of heater back of fireplace starts above ceiling. Breakfast bar separates kitchen from entry. Photos below show movable wall section closed (L.) and open. There are bookshelves on each side.



Bathroom has big storage cabinets, ultraviolet and heat lamps. Wall finish is a new vinyl plastic.





200 HOUSES PER YEAR

FRANK HOMES, INC. measures its production in hundreds, counts on taste to sell a house a day. Typical of medium-size builders, its operation is semi-mechanized, its houses standardized and its prices, average

Just two miles from Levittown is a development much more typical of the great majority of low cost housebuilding operations in Long Island's bustling Nassau County. This is a 275-house neighborhood laid out on 48 acres by Frank Homes, Inc. The Franks built the first 100 of these houses last year and, if sales keep moving at their present pace of about seven a week, they will build the rest this year.

Like the Levitts, the Frank brothers build a standard product and sell from a demonstration house. But there the resemblance between the two operations ends. The Franks employ no shop assembly work, cut their lumber at the site, hire union labor at a uniform hourly rate, and buy their materials and equipment through the usual distribution channels. They hit a price just $500 above Levitts'; the 740 sq. ft. house shown on the page opposite sells for $8,500. It has an expansion attic, electric range, steel kitchen sink and cabinets, gravity warm air heating, and, unlike the radiant-heated Levitt house, a full basement.

Despite some differences in plan and equipment between the Levitt house and the Frank house, the price differential is not so great as an arbitrary application of the theory of mass production to housebuilding might lead one to believe. The Frank price tag is evidence of the efficiency of this operation within the obvious limits fixed by its size and capital stake. The fact that the Franks, with their much smaller capital investment, can not only survive but do a thriving business in the giant Levitt shadow is an interesting demonstration of the extent and flexible character of the market for houses in this price bracket.

Leonard Frank, Phil Frank and step-brother Walter Stackler, who jointly own and operate the firm, are a little surprised by the current hubbub about "economy" houses; they figure they have been building economy houses for the last 24 years. Their father, a carpenter by trade, got his start in the housebuilding business when New York began to expand into Queens after World War I. All the boys went into the business as soon as they had finished school, and by 1927 this family firm was at work on its first big development—100 stucco bungalows which sold for $4,990. Like everybody else, they skidded in the depression, but wrote insurance and picked up enough contract building to stay in business. By the late Thirties, they were back in merchant building and soon were hammering out an average of over 100 houses a year, all built for the $5,000-and-under market. By the end of World War II, the Franks had reached the outer rim of Queens and soon moved over into Nassau County.

A house a day

At their Hicksville project, the Franks finish houses at the rate of one a day over the winter months and up this to better than two a day in spring and summer. A systematized method of site cutting, which they developed ten years ago, is basic in their construction. Says construction boss Phil Frank: "I've tried all kinds of shop precutting arrangements, but the cost of handling and moving the cut parts eats up the saving. I've always come back to our site cutting method." This begins at the Brooklyn lumber yard where the Franks buy. All the lumber needed for one house is loaded on a truck and delivered to the house site. Here one carpenter ($2.50 per hour) with a power saw dimensions the studs, joists and siding in four hours. House foundations are poured by a crew of eight laborers ($1.90 an hour) and one foreman ($20 a day), who finish one cellar a day. Carpentry work is broken down into five simplified operations with two carpenters assigned to each job. These are: 1) sill and floor; 2) wall framing; 3) beams and rafters; 4) sheathing; 5) interior furring. Each team completes its operation in one working day. One roofer takes another day to complete his job. Frank gives these estimates for subcontracted operations: rough plumbing, 10 hours; finish plumbing, 20 hours; wiring, 20 hours. Drywall interior finish, requiring careful spackling and taping, is done by one man in a week. From grading to clean-up, it takes the Franks just six weeks to build a house.

Like most housebuilders of their size, the Franks have no great variety of machinery. Most of their equipment is standard: bulldozer, steam shovel, trucks, regulation concrete-mixer, automatic scooper, power saws. The recently purchased power-driven wheelbarrows are less commonly found among the housebuilder's tools. The Franks employ 90 workmen—a payroll of $6,000 a week.

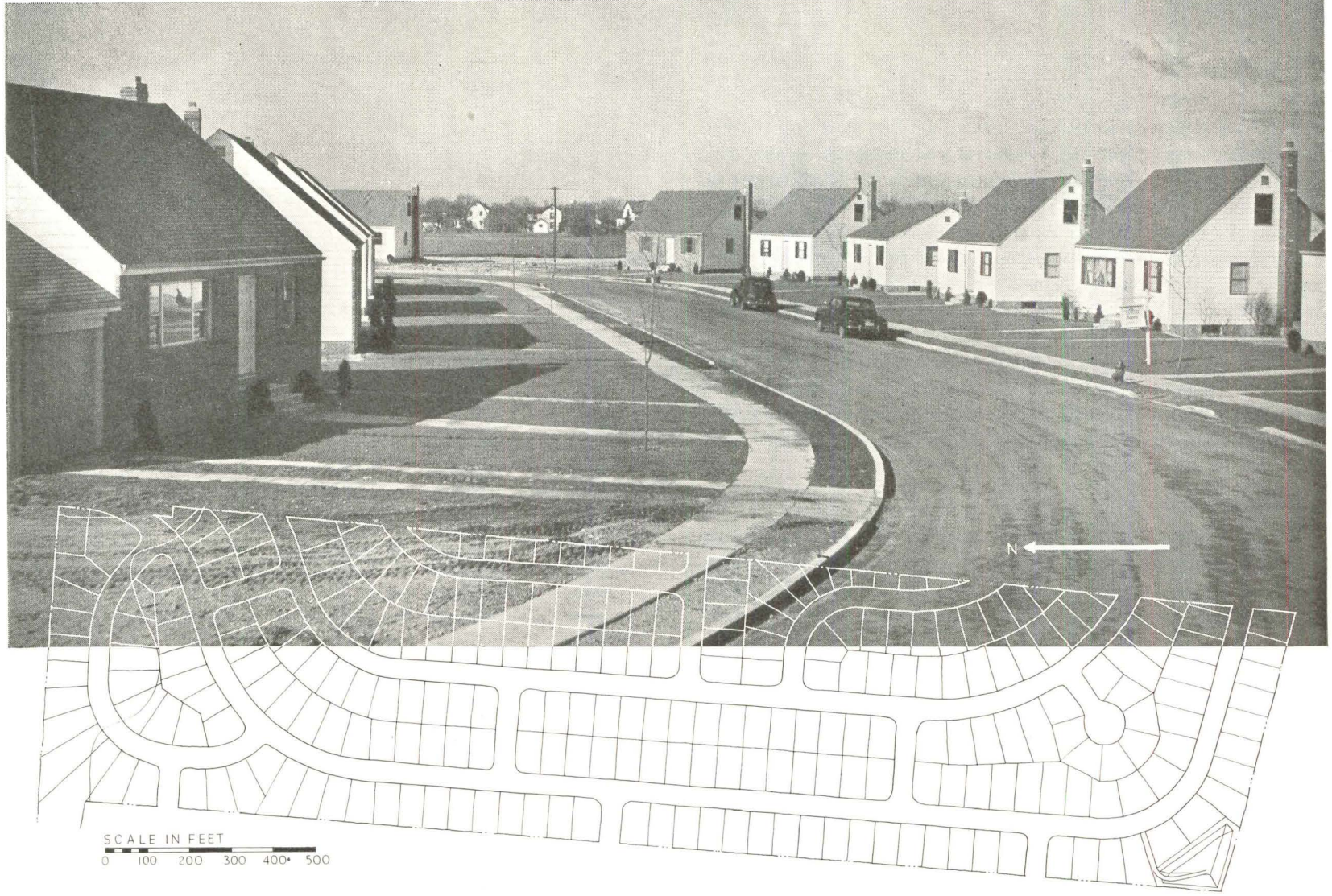
Policy on subcontracting is flexible and is revised by frequent comparison of the subcontractor's price with the cost of Frank-supervised labor. A subcontractor recently got the plumbing contract because the Franks discovered that they were not beating the subcontractor's price due to loss of too many small plumbing parts on the job.

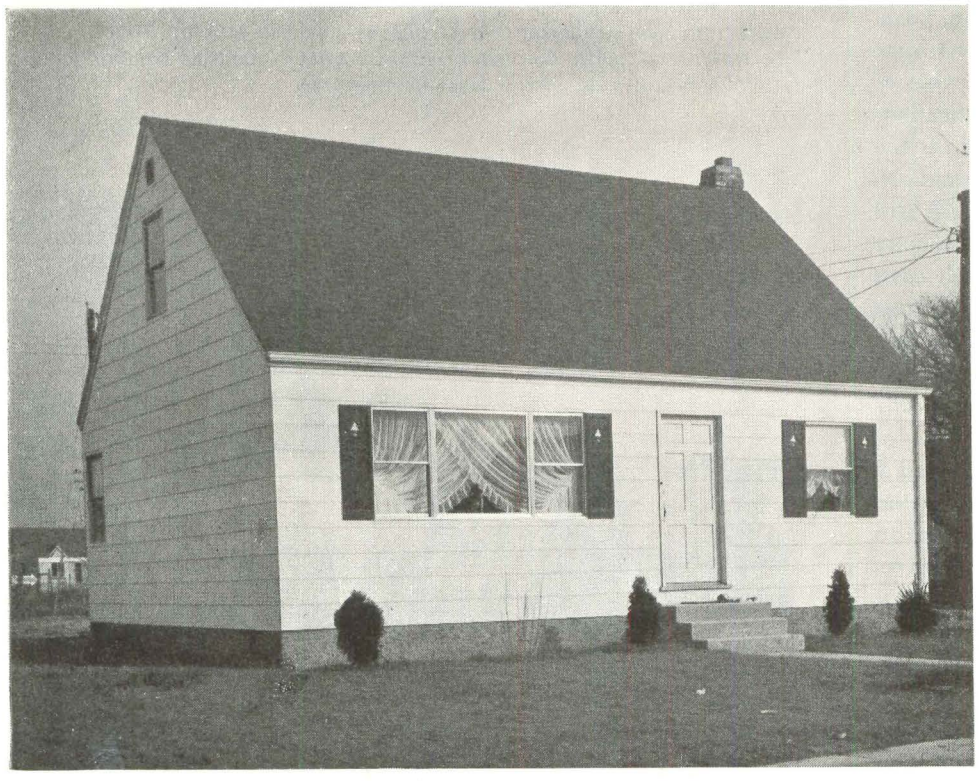
The Franks possess no special magic in buying materials, but they are impressive enough customers to get a discount of 20 per cent on the retail price of lumber and of up to 15 per cent on kitchen equipment. During last winter's slump in lumber prices, they did even better. Buying heavily, they laid in this year's lumber supply at a cost 15 per cent below what they usually pay. The Franks are a good example of the other side of the distribution argument raised by Levitt—they believe they are paying their lumber dealer for a service which it would be more expensive for them to perform themselves. "I could buy lumber in carload lots and have it shipped direct," Leonard Frank says, "but that means I would pay for handling. My overall cost from the yard is cheaper."

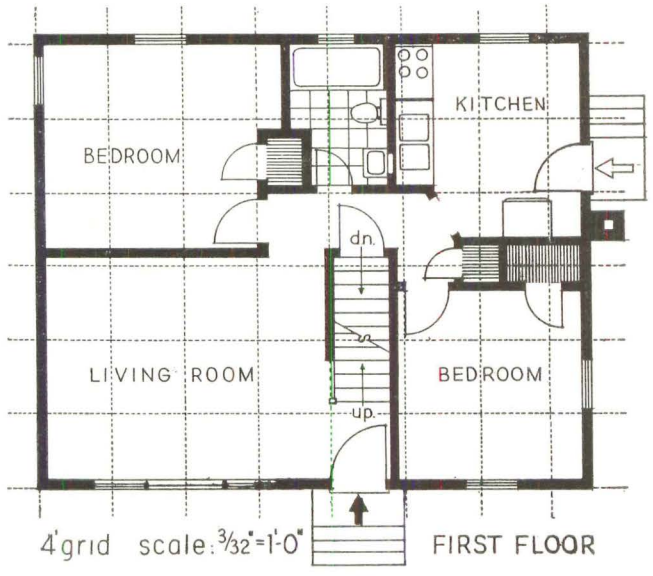
A sale a day

To sign up buyers at a rate that keeps pace with production, the Franks have to push sales pretty hard. They find New York's tabloid *Daily News* their best advertising medium and feature an $8,290 price tag which covers the basic house without expansion attic. Customers with a little more money to spend may decide on a picture window ($100), a garage ($1,000) or a brick veneer front ($400). Three salesmen are on hand at the model house on Sunday (only one is a full-time man) to handle the several hundred prospects who usually show up. The main sales job is to separate the lookers (a model house is a favorite Sunday diversion) from the customers. This the salesmen do by a tactful but firm inquiry as to how much the prospect makes. Those who indicate they can meet monthly carrying charges get the full sales talk.

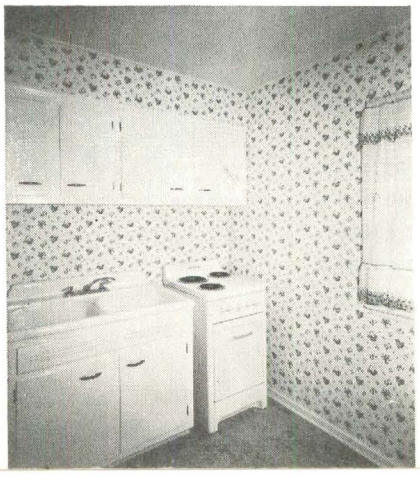
Turning so many customers away hurts the Franks' sound merchandizing instincts and keeps them lying awake nights figuring how they might be able to hit the $50 a month market. But their own costs are so fixed that there are not very many ways in which they can

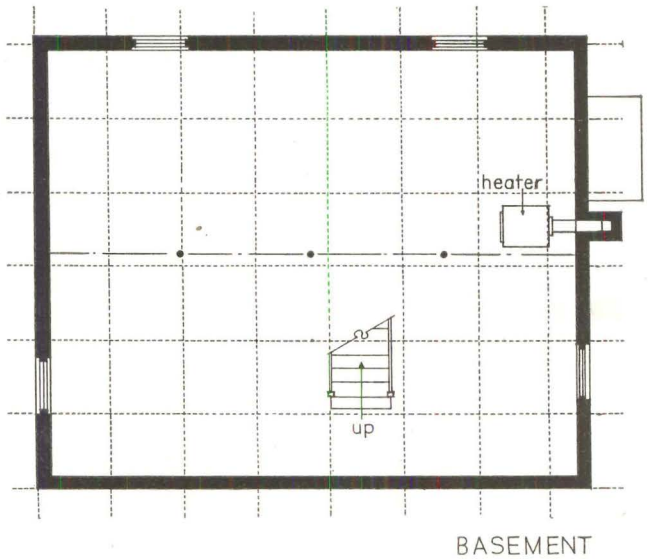






FRAME HOUSE has cement asbestos siding, double hung aluminum windows, oak floors with asphalt tile in kitchen and bath. Houses are sited in line on curvilinear street layout. Franks are also developing a high-priced neighborhood, where they have finished three houses priced from $30,000 to $40,000.





move. Last year they were doing better than they now are. This is because there was plenty of VA-guaranteed mortgage money at 4 per cent, which set monthly carrying charges on the $8,290 house at $58 a month. Now the Franks find lenders uninterested in a straight 4 per cent loan, and houses are financed either under FHA Title II or a combination FHA-VA mortgage, which means a monthly payment of $63. All mortgage loans are made by the County Trust Co., White Plains, N. Y., which also stands ready to tide the Franks over with short-term building loans when closings are slow.

As the one construction cost-cutting step they can think of, the Franks are experimenting with a slab foundation with forced warm air heating. They did considerable research on this, making use, for example, of the bulletins issued by the University of Illinois.

A problem a day

Most of the Franks' costs are beyond their control. They figure that an incentive wage system instead of uniform hourly union rates might cut as much as 25 per cent from the price of their labor. They are negotiating now with the unions in an attempt to set up a system of a fixed amount of pay for a fixed amount of work, but the unions have shown no sign of interest. Their attitude may be different, Leonard Frank thinks, if the current high rate of building drops off. "We do not propose wage reductions," Leonard says, "but we know from our own prewar experience that if labor could see its way to work on our type of building on an incentive, or productivity pay basis, this could be effectively translated into lower costs and steadier employment through sustained volume. We consider it to be a fairer and more equitable way to pay labor on our kind of operation. As it is today, highly skilled workers receive no more than less skilled workers, thus dulling initiative."

As president of the Long Island Home Builders Association, Leonard Frank has a chance to throw considerable weight against some of the other factors which keep his production costs high. One of these is Nassau County land planning and public works specifications which local builders say are the highest in the country and far too high for the low cost neighborhood. Nassau County, for example, requires a 60 ft. lot, while FHA will approve a 40 ft. lot. FHA will accept any street the local district will maintain, but Nassau County requires a 30 ft. street and a 1½ in. blacktop finish, which costs $2.25 a yard. Frank figures he could put in an acceptable street (cinders, two coats of oil, sanded and bluestoned) for $1 less per yard. Nassau County also has 60 different building codes, and the volume builder may sometimes find himself moving from one code jurisdiction to another in the middle of a job.

The Long Island Home Builders Association has just finished a cost analysis of a representative $9,000 house. It estimates that exactly $1,200 of this house price goes to pay for conformance to outdated code provisions and excessively stringent land planning requirements. This adds $7.50 per month to carrying charges.

The Franks and their association colleagues hope that united effort may in time have some effect on the labor, code and other fixed costs which keep their house out of reach of the $50 a month market. In the meantime, the Franks have asked their architect to work up a new house as insurance against any flagging in the steady flow of customers with $63 or more a month to spend. This house, which they hope to price at $7,500, will be no startling departure from their present model, but it will look more like a "ranch" house than a Cape Cod. The Franks are completely uninterested in any startling departures from their tested plan or building methods, having observed that the road to bankruptcy is paved with schemes for housebuilding revolution. If any basic changes in housebuilding methods do take place, they will not come from middle-of-the-road builders like the Franks. But there seems no reason to doubt that they—and their counterparts all over the U. S.—will go on performing their efficient, workmanlike job in the great low cost market for many years to come.

COST BREAKDOWN

Survey, engineering and architcture	$100
Concrete work	880
Lumber, trim, roofing and asbestos	1,525
Carpenter labor, roofing and asbestos	750
Brick work	185
Dampproofing and weather-stripping	45
Insulation	35
Dry-wall inside finish	295
Oak flooring	250
Linoleum	35
Painting and wallpaper	250
Plumbing and heating	1,185
Electrical wiring, fixtures and electric range	255
Rough and finish hardware	90
Kitchen and medicine cabinets	91
Grading, landscaping and fill	155
Cleaning	15
Watchman and supervision	125
Compensation, liability insurance and security tax	130
Selling expense, overhead, land and profit	1,894
Total	$8,290

CONSTRUCTION OUTLINE: Exterior walls—12 x 24 in. asbestos, 1 in. sheathing, studs; inside—Sheetrock, U. S. Gypsum Co. Floors—oak. ROOFING—15 lb. felt, asphalt strip shingles, U. S. Gypsum Co. WINDOWS: Sash—Alwintite aluminum, Aluminum Window Corp. FLOOR COVERINGS: Kitchen—linoleum. Bathrooms—asphalt tile. WALL COVERINGS: Main rooms—wallpaper. Bathrooms—Sanitas, Standard Coated Products Div., Interchemical Corp. HARDWARE—Kwikset, Petko Industries, Inc. KITCHEN EQUIPMENT: Range—Kelvinator Corp. Cabinets—Lakeville Mfg. Co. BATHROOM EQUIPMENT—Kohler Co. and American Radiator-Standard Sanitary Corp. HEATING—warm air system, Joliet Heating Corp.

Roy Stevens

POWER-DRIVEN MACHINERY investment is not large. One carpenter with electric saw cuts all lumber parts for each house at the site in four hours, works one day ahead of sill-laying crews.





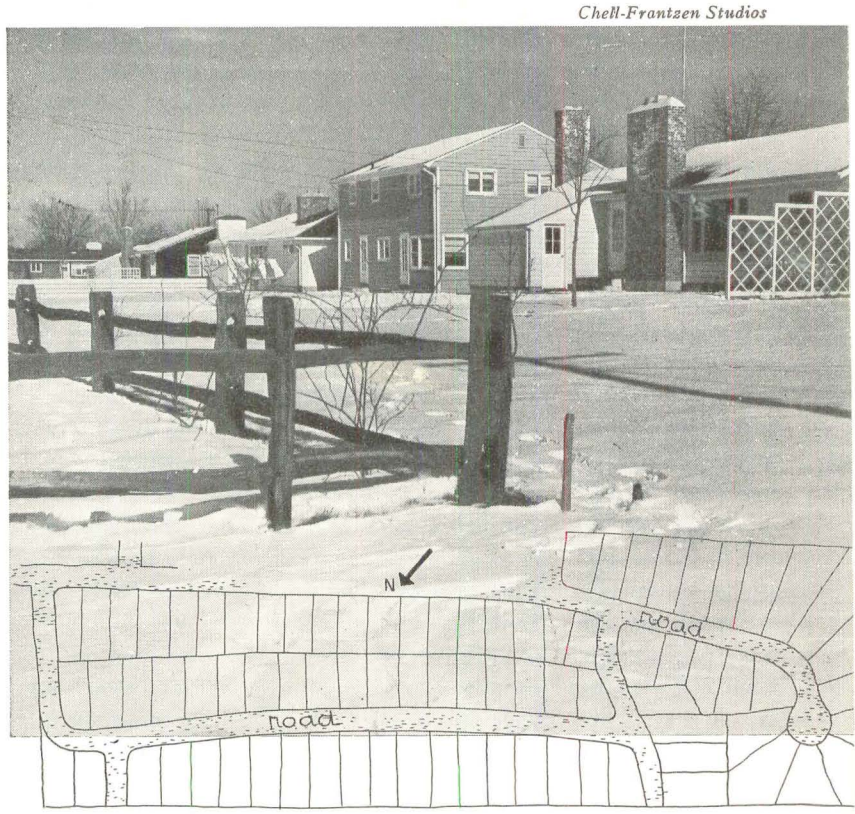
25 HOUSES PER YEAR

SUBURBAN PROPERTIES, INC. builds only a few houses, but builds them bigger and better. Prices reflect professional design, quality construction and limited production in a job which approaches custom building

Dwarfed by the giants of the trade who build hundreds of houses a year and by the real Paul Bunyans who count theirs in the thousands, the typical merchant builder is one whose annual production is measured in merely two digits. His operation is about as small as it can be and still provide him with a livelihood. Inversely related to his scale of business, his houses are larger, his costs are steeper and his sales prices are higher than those of his more prolific contemporaries.

In these respects Hawley Jaquith and William T. Smith are typical merchant builders. Working in Springfield, N. J., 25 miles on the opposite side of New York City from the Long Island baliwick of the mass builders, their Suburban Properties, Inc., builds 25-35 houses a year containing 950-1,300 sq. ft. and selling for $16,000-$19,000. But, there the analogy stops. In many respects Builders Jaquith and Smith are far from typical. Their healthy respect for the fundamentals of good business is refreshing in a field noted for mismanagement and bankruptcy. And, the design of their houses, to which Messrs. Jaquith and Smith quite frankly attribute their notable success, is equally refreshing in this field of merchant building.

Chell-Frantzen Studios



Colonials to Ranchers

Before the war, these two young men independently gained experience in all phases of house building. After their discharge from the Navy in 1945, they teamed up, bought 11 lots in Springfield, started building traditional two-story colonials in a modest "feeler" operation. They put $13,500 of their own capital into the venture and agreed to protect it by never going deeper into debt than the extent of their land, development and construction loans.

Having established themselves during this 11-house starter program, Suburban Properties the following year grew in stature and reputation. With the aid of an 85 per cent purchase money mortgage, 25 acres of rich nursery land were acquired, platted and named "Fieldstone." Two independent architects were commissioned to develop a series of small ranch type houses of relatively contemporary design which would put Suburban Properties well ahead of local competition. It was a smart move. These new houses have sold twice as fast as their colonial forerunners and twice as fast as the colonials offered by nearby competitors—so fast that Jaquith and Smith have had difficulty keeping production up with sales: 17 in 1947, 24 in 1948 and seven thus far this year.

Eleven Loyal Carpenters

Like the scale of its operation, Suburban Properties is a small organization. Actually it consists only of partners Jaquith and Smith. The former handles all financing, does considerable buying and is responsible for the company's books. The latter is concerned primarily with survey, design, lumber buying and production. One salesman devotes his weekends to the project on a commission basis at $300 per house.

The balance of Suburban Properties' team is a crew of 11 proficient, loyal carpenters, including two apprentices. They are divided into three gangs: five on framing, three on exterior finishing, two on trimming, plus a general helper. They are responsible to their working boss who functions much like a subcontractor—but without a contract. With the aid of two to four additional carpenters, this standard crew is capable of boosting production to the rate of one house a week. Although the labor is non-union, Suburban Properties pays a union scale ($1.25 to $2.50 per hour). The boss carpenter gets an additional 25 cents per hour in pay, plus 12 per cent of the total payroll to cover the carpenters' taxes and insurance, and an extra 8 per cent for good measure. The payroll runs to $1,000 per week.

Because these carpenters recognize a good thing when they see it and because Suburban Properties carefully schedules its work, absenteeism is negligible and lay-offs few and far between. Roofs have been applied in near-zero cold and in 100° heat; only three weeks' work in two years have been lost due to impossible weather. Even vacations have been foregone. Apparently, the mechanics are postponing rest until the time when employment may not be as steady as at present. Meanwhile they content themselves with six holidays per year with pay.

Seven Speedy Subcontractors

All other work at Fieldstone is handled by a string of hand-picked subcontractors. They are selected more on the basis of their reputations for steady, efficient, high-quality work than on competitive costs. The smaller the operation the more essential it is that production move on schedule. Suburban Properties can ill afford to waste its

carpenter time waiting on tardy or fumbling subcontractors. Nor can Suburban Properties afford needlessly to tie up its working capital. Therefore, reasonable premiums are paid to assure a smoothly running show. A small plumbing contractor who minimizes costs by doing some of the work himself could cut perhaps $100 off Suburban Properties' average $1,200 plumbing bill, but the job would not be completed as expeditiously as by the larger contractor who handles several jobs at once and spends his own time supervising, expediting and making sure that materials are delivered as they are needed.

Most of the subcontractors work on a unit-cost or cost-plus basis—a system which is frequently checked through competitive bids. Specifications are controlled by the builders, although the architects' advice is sought and frequently followed. Purchases are made only after Jaquith and Smith have shopped extensively for both quality and price. Lumber and gypsum products are obtained from any one of three local dealers; millwork offered by a national distributor is constantly checked against the prices of local mills. The buyers are always on the lookout for a bargain or a discount. On one of their shopping tours, Smith found that flush doors imported from Finland could be had at a $5 unit saving over domestic doors ($55 per house). When large quantities of material can be used quickly (Suburban Properties has no warehouse), the builders take advantage of quantity mark-downs. They recently bought 13,000 sq. ft. of plywood subflooring at a discount of 1.5 cents per sq. ft.

But Suburban Properties bemoans the fact that small builder's discounts are peanuts compared with those enjoyed by big direct-buying builders such as Long Island's Levitt. Suburban Properties gets its lumber at 7½ to 10 per cent below the retail price, while Levitt, who owns his own mills, probably pays less than the wholesale price which is about 20 per cent below retail. The small builder buys kitchen cabinets at 20 per cent off; the direct buyer probably saves at least 40 per cent. Kitchen equipment is marked down 15 to 20 per cent for Suburban Properties compared with 40 to 50 per cent for Levitt. For gypsum products the comparative savings below retail are close to 10 and 50 per cent, respectively. The importance of these discounts to the big builder is reflected in Suburban Properties' admission that it probably could not reproduce Levitt's $7,990 house (see page 84) for less than $10,000 on land of comparable value.

AVERAGE COST BREAKDOWN

	Per cent
Lumber	18.5
Millwork—flooring, doors, cabinets, windows, screen, etc.	11.7
Hardware	1.3
Insulating and weatherstripping	1.2
Carpentry labor	15.5
(Subtotal by Suburban Properties)	(48.2)
Excavating, grading, landscaping, driveway	4.1
Masonry	18.5
Plumbing	8.9
Heating	6.4
Electrical	2.1
Linoleum and tile	2.3
Painting and decorating	5.3
(Subtotal by subcontractors)	(47.6)
Fees, permits, cleaning, kitchen equipment, shades and miscellaneous	4.2
Total labor and materials	100.0

AVERAGE PRICE BREAKDOWN

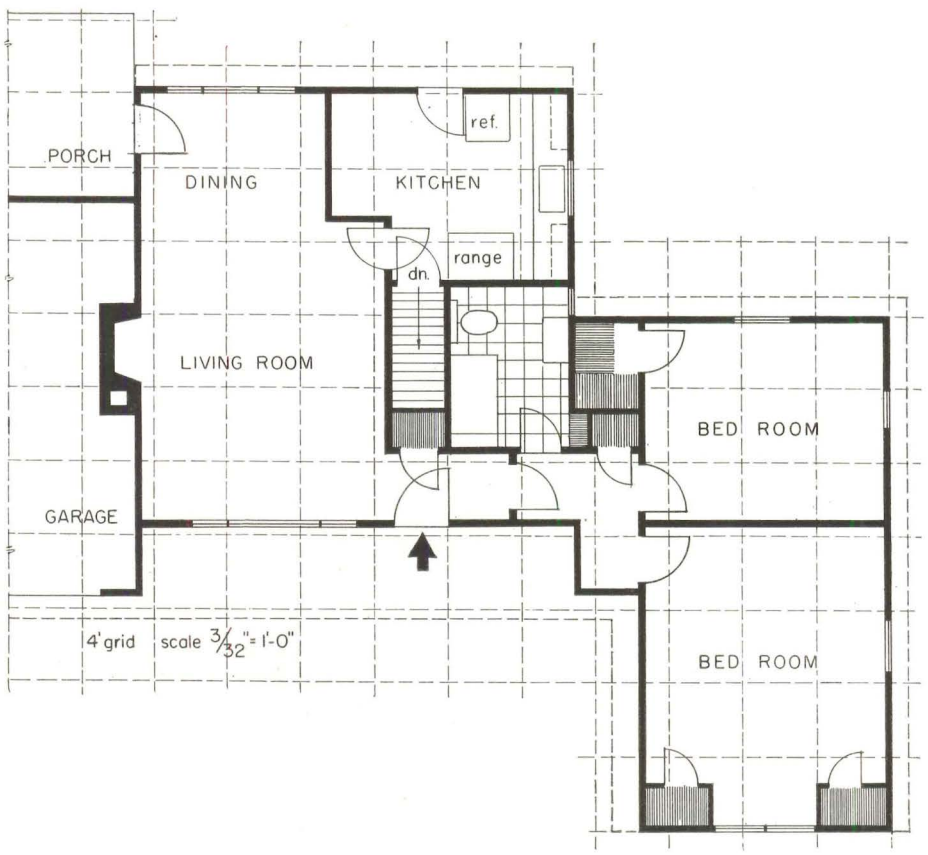
	Per cent
Labor and materials (see above)	68.0
Land	4.5
Land development	9.5
Selling costs	3.0
Overhead	5.0
Profit	10.0
Total sales price	100.0

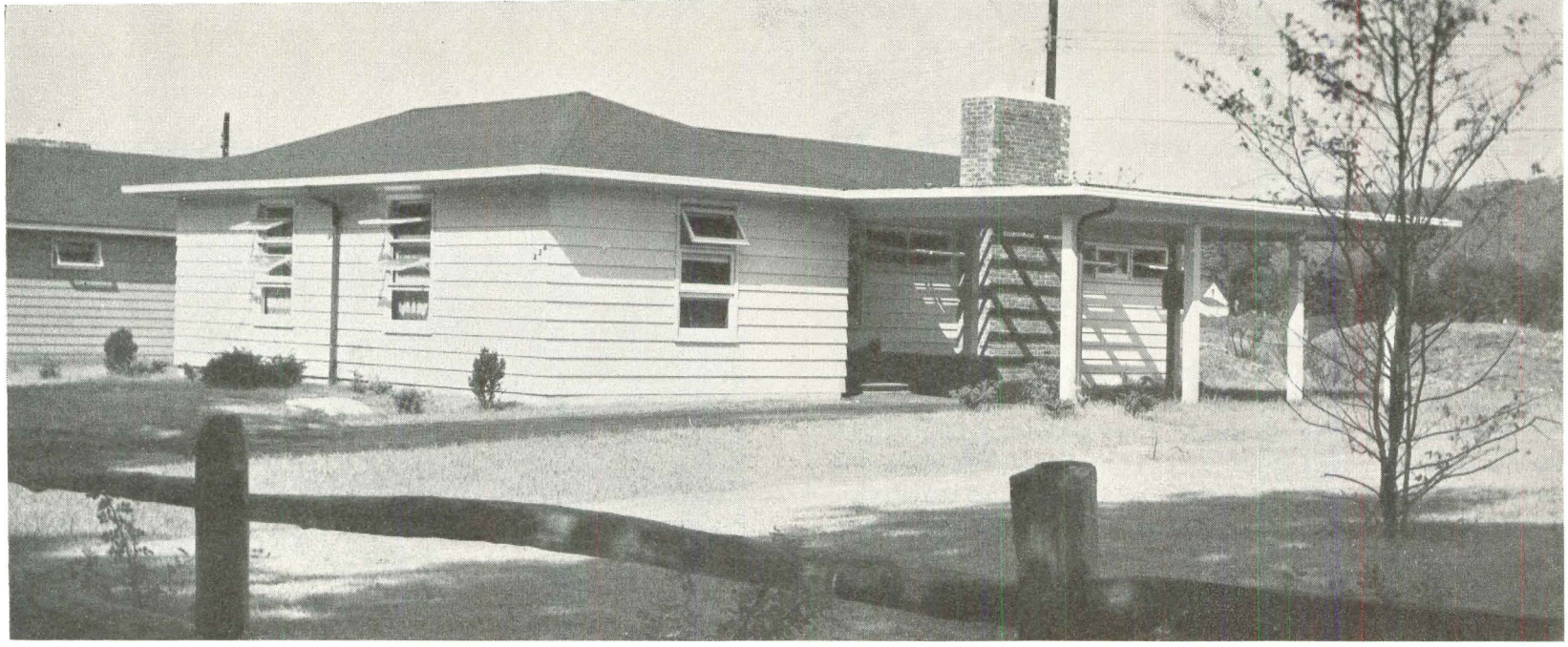
CONSTRUCTION OUTLINE: Foundations — cinder concrete or cement block, Multiplex Mfg. Co. Waterproofing—Anti-Hydro Waterproofing Co. STRUCTURE: Exterior walls—shingles or siding, studs, Fiberglas batts, Owens-Corning Glass Co., ½ in. sheathing and Sheetrock, U. S. Gypsum Co. Floors—oak. Ceilings—Rocklath and plaster, U. S. Gypsum Co. ROOFING—Certain-teed Products Corp. INSULATION—Owens-Corning Glass Co. and U. S. Gypsum Co. WINDOWS: Sash—Curtis Co.'s, Inc. Glass—Libbey-Owens-Ford Glass Co. FLOOR COVERINGS: Kitchen and bathroom—linoleum, Armstrong Cork Co. and Congoleum-Nairn, Inc. GARAGE DOORS—General Overhead Door Co. HARDWARE—Schlage Lock Co., Russell & Erwin Mfg. Co. and Petko Industries. ELECTRICAL FIXTURES—Atlas Electric Products Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. Cabinets—Ketcham Mfg. Co. HEATING—warm air system, Thatcher Furnace Co. Grilles—Turnbull Mfg. Co. Thermostat—Minneapolis-Honeywell Regulator Co. Water heater—Rheem Mfg. Co.

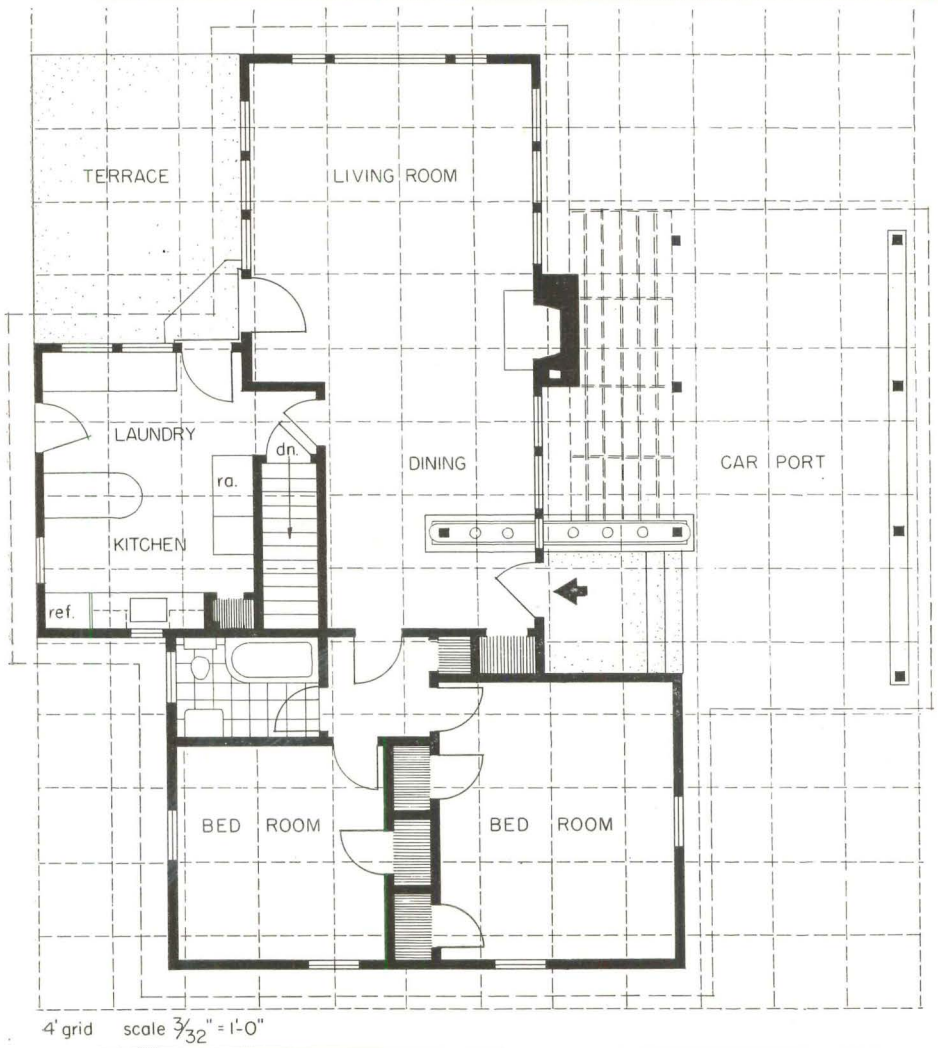
The Monetary Tool

Because the small builder must pay more for his materials and must operate at a slower pace, he requires more working capital per house than his bigger brothers. Jaquith and Smith anteed $13,500 cash when they formed Suburban Properties and obtained a credit line of $10,000. Today, thanks to the plowing back of profits, the original working capital has at least been doubled. It has been found that normally about $4,000 of capital is needed at one time or another during the construction of each house. (The more houses under construction, the smaller the capital requirement per house, for the peak requirements of the various houses will probably be staggered over a period of time.) Although the total working capital must be rotated about 14 times to finance the production of 25 $17,000 houses a year, it is still sufficient to permit Suburban Properties to discount all of its bills (at an annual saving of about $2,000), to pay off its labor and subcontractors on time (thus creating good will and assuring the complete cooperation of these men) and to keep the company out of hock to its suppliers (thus precluding the embarrassing appearance of creditors at sale-closing ceremonies).

These capital requirements are over and above the funds obtained through land, improvement and construction loans. Fieldstone's 25 acres were purchased outright, subject to a purchase money mortgage. Because Prudential Insurance Co. is keenly interested in writing the permanent mortgages on Suburban Properties' houses, it is also willing to lend $35,000 at 4½ per cent to cover the cost of progressively developing each third of the tract with streets, curbs, side-







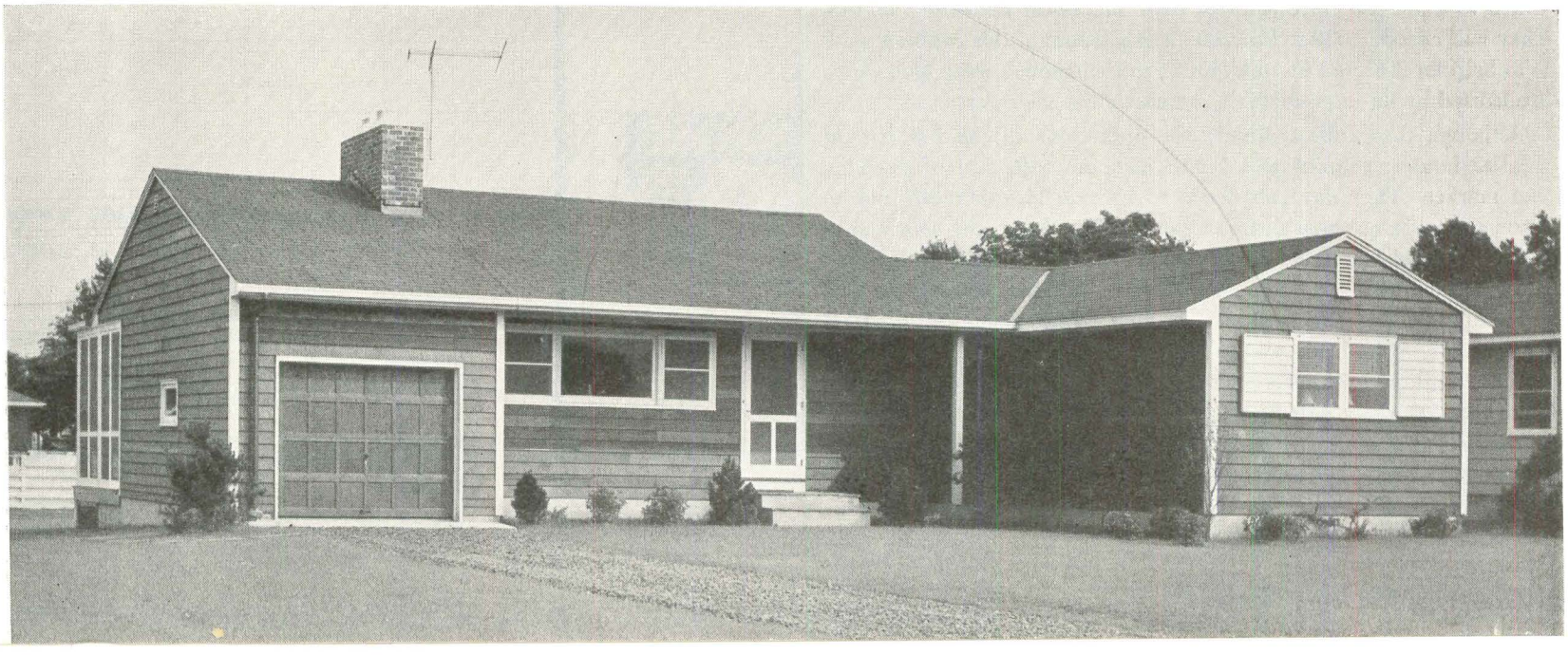
4' grid scale 3/32" = 1'-0"

INTELLIGENT PLANNING is evidenced in the small windows on the street and carport sides of this $18,000 house and by the large windows (below) which open the living room to the rear yard and western view of nearby hills. Architects: Alfonso Alvarez & Associates.

Chell Frantzen Studios



NATURAL FINISHES (below) impress passers-by, inspire much word-of-mouth publicity for Suburban Properties. Advertising is limited to the classified columns of local newspapers, but Fieldstone still benefits from the big publicity program which accompanied the opening of a demonstration house built by Suburban Properties under the Revere Quality House Institute Program (p. 110). Some 500 people visit the site each weekend. One of them bought this house by Architects Alfonso Alvarez & Associates for $17,200.



walks, sewers and other utilities. (These expenses total about $14 per front foot—twice the raw land cost.) Each such development loan is amortized with funds received from the first installments of the construction loans. Also written by Prudential, these construction loans amount to $10,000 to $11,000 per house, bear interest at 5½ per cent and cover a maximum period of six months.

Working on four or five houses at a time, Suburban Properties finish each house well before the expiration of this time limit—usually within ten to 12 weeks. Then they are sold with the aid of 20 year, 4½ per cent permanent mortgages. Prudential's opinion of Fieldstone is reflected in the fact that these mortgages cover 75 per cent of the property's appraised value, compared with the more conservative 66⅔ per cent limit placed on most other projects. But, since 75 per cent of appraised value is only about 65 per cent of sales price, Fieldstone buyers must make down payments ranging between $6,000 and $7,000. Of course, a $4,000 GI loan along side of Prudential's regular loan lowers the cash requirement accordingly.

Suburban Properties is not interested in dickering with FHA for mortgage insurance. "Too much red tape" is the principal reason. Also, FHA inspections would delay construction, and FHA standards would add non-essentials and up costs. For instance, FHA would require gutters (at $1.25 a ft.) around the entire perimeter of Fieldstone's hipped-roofed houses; Jaquith and Smith provide them only at front and rear at a saving of $75-$100 per house.

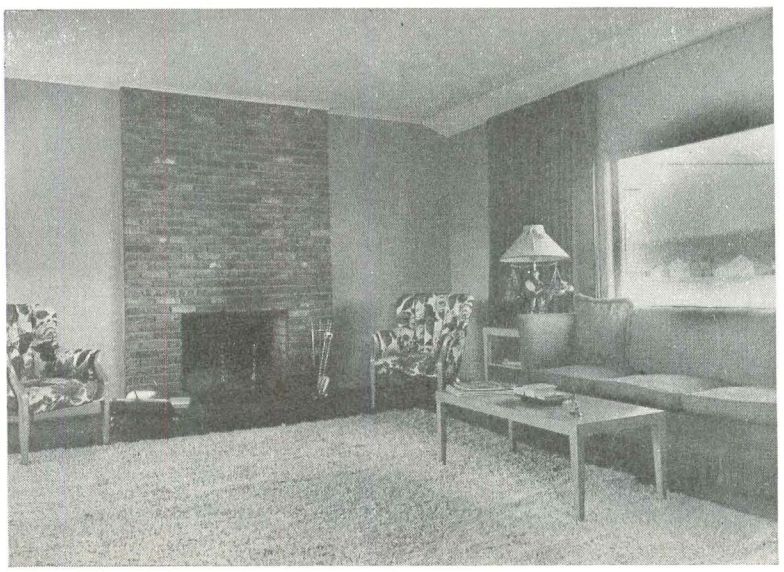
Fieldstone's buyers welcome such savings. Their annual incomes range from $5,000 to $10,000, average about $7,000. Most of them are junior executives employed in the Newark industrial area—some 20 minutes away by automobile or bus. They are sales managers, engineers, senior clerks, technicians; a third of them are veterans. In many of the families both husband and wife are breadwinners. Surprisingly, about half of them sold older houses to buy in Fieldstone; the other half came from small apartments.

Leveling the Sales Curve

Thanks to unseasonably high sales this past winter, Fieldstone now has only one finished house for sale. Nine are under construction, and six of these have already been sold. Jaquith and Smith note no adverse effects of the new buyers' market—they do note, however, that house hunters are becoming more discriminating and buy only after exhaustive shopping. This trend suits Suburban Properties to a T. While their prices are somewhat higher on a square foot for square foot basis than those of bigger builders, the design and quality of Fieldstone houses appeal to discriminating buyers who have thoroughly shopped the area.

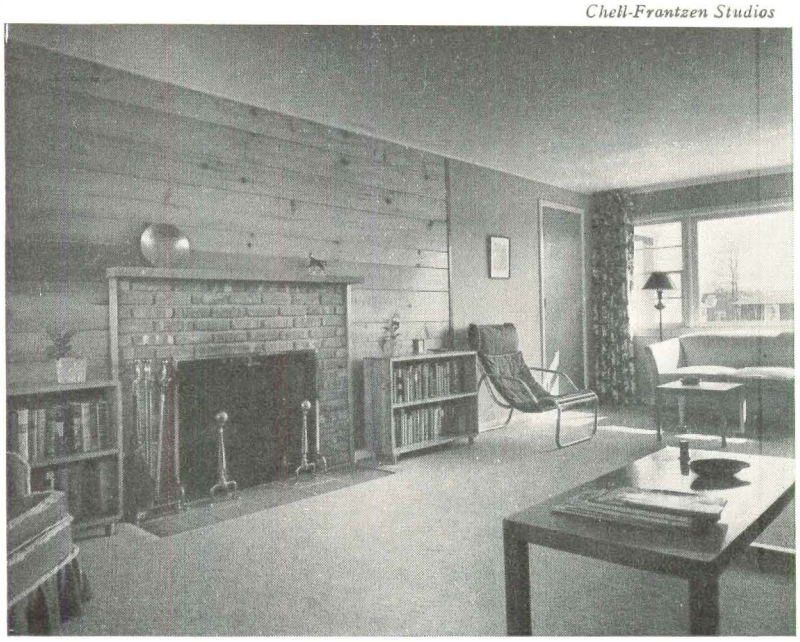
As to the future—Jaquith and Smith plan to supplement their Fieldstone operation with contract building in the higher price field. They have already purchased a half dozen lots in swank Short Hills on which to build larger versions of their successful Fieldstone houses. They will cost $25,000 to $30,000. The purpose of this contract work is to help level off the ups and downs in Fieldstone's work load which are caused by an unpredictable, unseasonable sales curve.

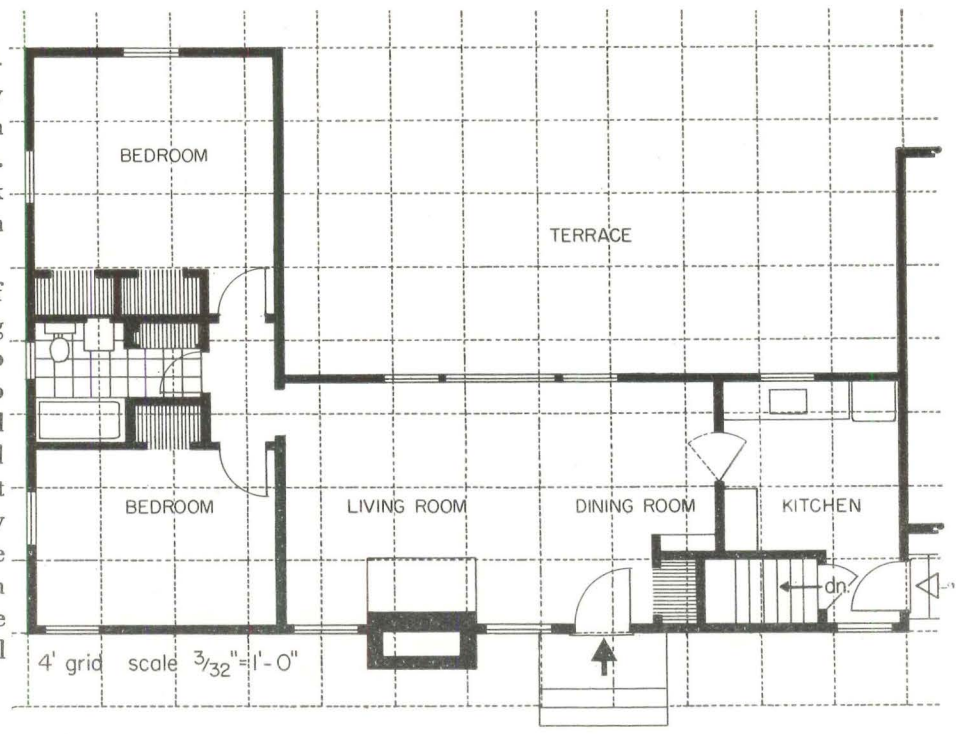
Although they follow closely the operations of the builders of smaller houses, Jaquith and Smith have no intention of entering that market. They have no desire to become big operators nor to assume the big operator's risks. Says Smith: "We will continue to build our reputation on quality construction, sensible design and conservative business principles. As in the past, once a month we will analyze our status and forecast our cash requirements for the next 60 days. If we find that we are in for a pinch, we will intentionally stall our building. As sales pick up, we will push the schedule. To be more specific, whenever we have five unsold houses under construction we will suspend starts 'till sales pick up. Operating on this basis, we believe that continued success is assured and we know that we will never lose our shirts."

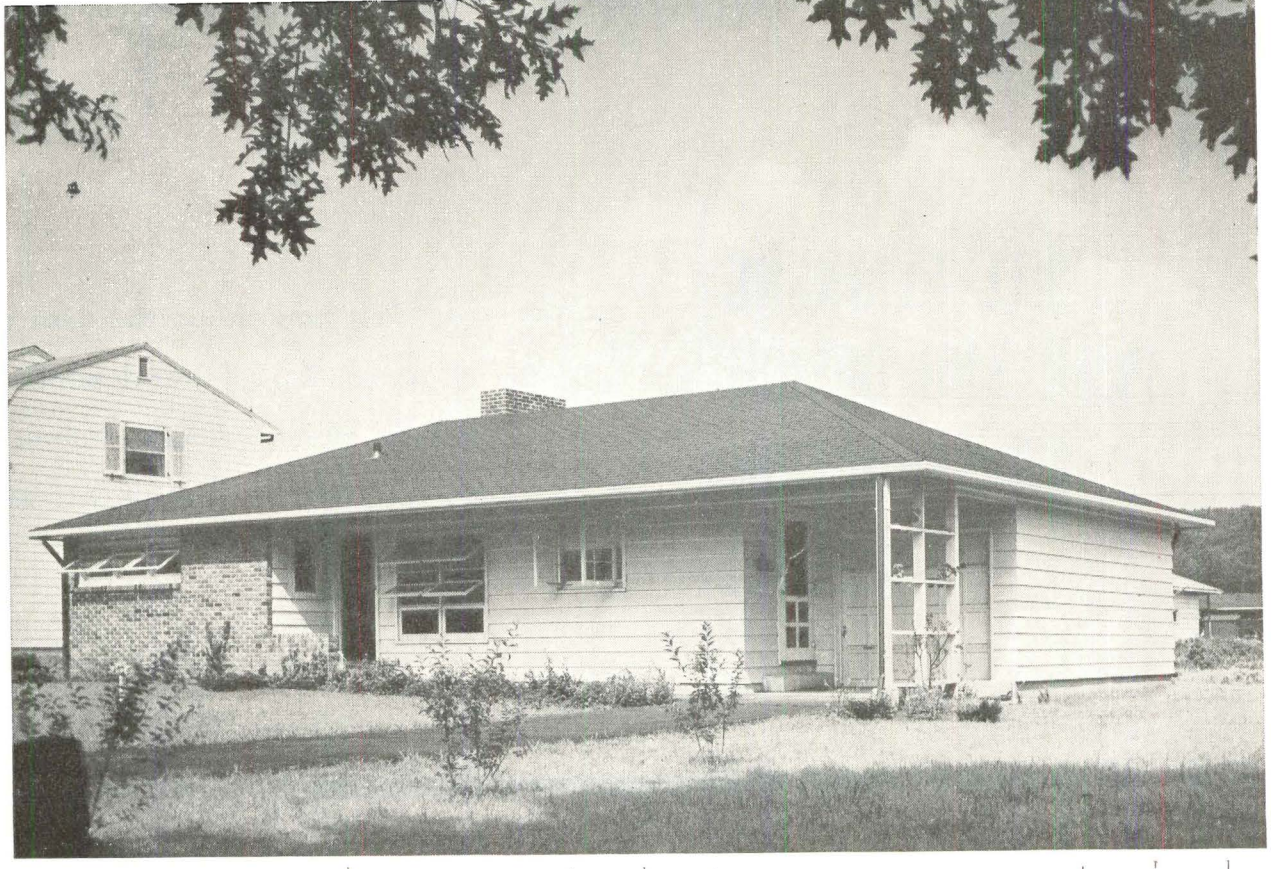


TYPICAL LIVING ROOMS illustrate the use of large windows at the rear of the houses and the use of materials in their natural state. Quality of construction is apparent in the float finished ceilings, ½ in. plaster board wall finishes, kiln-dried, toxic-treated millwork, select oak floors, carefully pointed masonry. In quality of workmanship and materials, Fieldstone comes closer to custom building than most merchant builder projects.

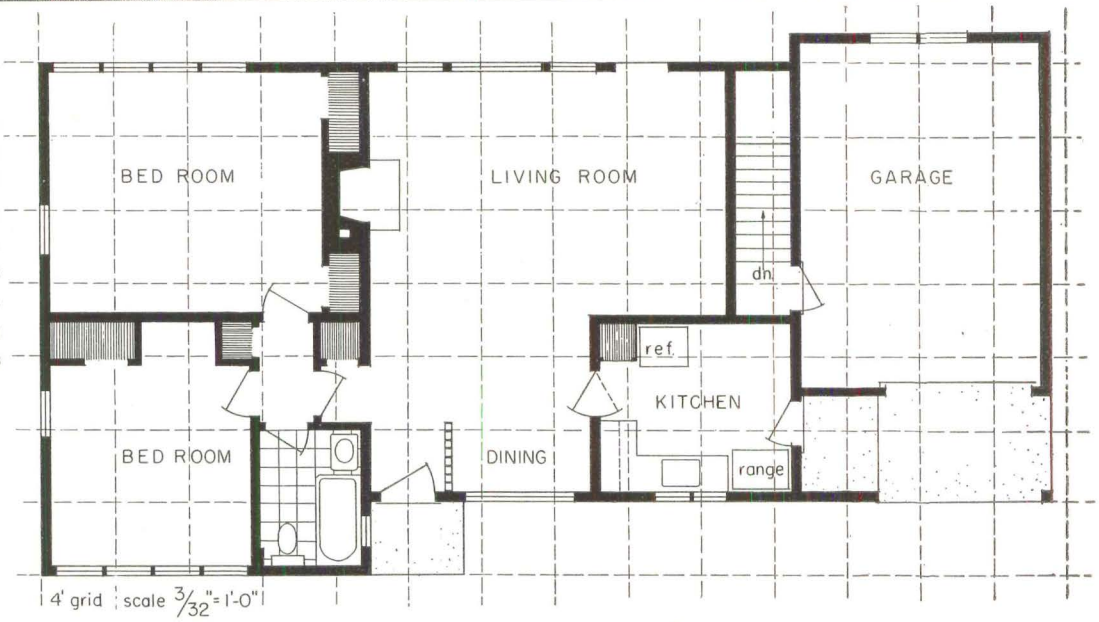
Chell-Frantzen Studios

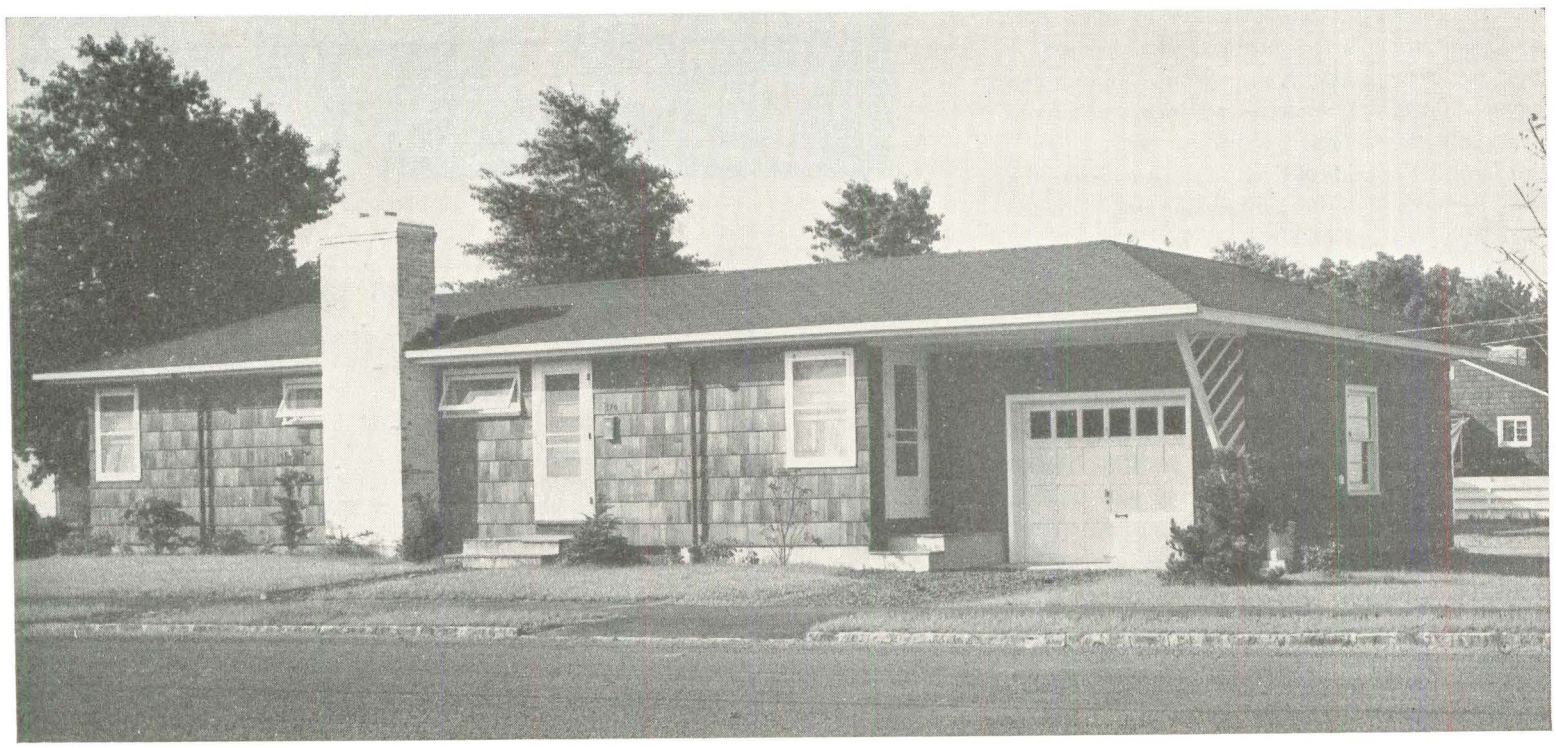






GOOD DESIGN, like quality construction, costs Suburban Properties good money, but pays for itself by speeding sales. Thus, while some competitive builders in the same area offer 10 per cent more living space at 25 per cent less price, their one-and-one-half-story bastard colonials sell at only a third the pace of Suburban Properties' trim bungalows. Design of Fieldstone's houses is not only good, but varied. No two houses look alike—the 44 built to date are based on variations of ten basic plans. House, above, by Architects Dalzell & Dalzell sells for $17,800, including standard 65 x 150 ft. lot. House, below, by Architects Alfonso Alvarez & Associates sells for $16,500.





SITE PLANNING
PLAN AND DESIGN
CONSTRUCTION
SELLING

The first two shape the face of tomorrow's America. On all four depends the success or failure of its builders. Interesting solutions to each problem are shown here and on the following pages.

The builder who puts a few hours and a few dollars into providing interesting, sensible settings for his houses stands to lure many a prospect from competitive builders who are still wedded to the unimaginative gridiron site plan. Cul-de-sacs, looped and curved streets, varied color schemes, intelligent positioning on the lot, judicious planting and design variations are a few of the tricks which make the house in one development seem to say "home" while its counterpart in another development remains just a house.

Restraint in the use of the bulldozer may have been partially responsible for Standard Homes' taking first prize in the NAHB Community Development Competition this year. The site plan shows how Standard took advantage of natural land contours. Second prize in the competition went to Smith & Hill for its Park Ridge Manor development near Chicago. Here identical houses were given character and variety by shifts in orientation and garage-house relationships. Site planning becomes particularly important when a standardized plan is used or when houses are very small. Kaiser Homes' Panorama City, on a pancake-flat site, made blocks long and curved its streets to avoid the standard gridiron.

Bohannon (p. 136) achieved variety by curving the streets on his perfectly flat site and placing many houses on loops and cul-de-sacs. Color plays a large part in the Levittown scheme of things (p. 84) but Levitt also makes use of loops, curves and set-backs.

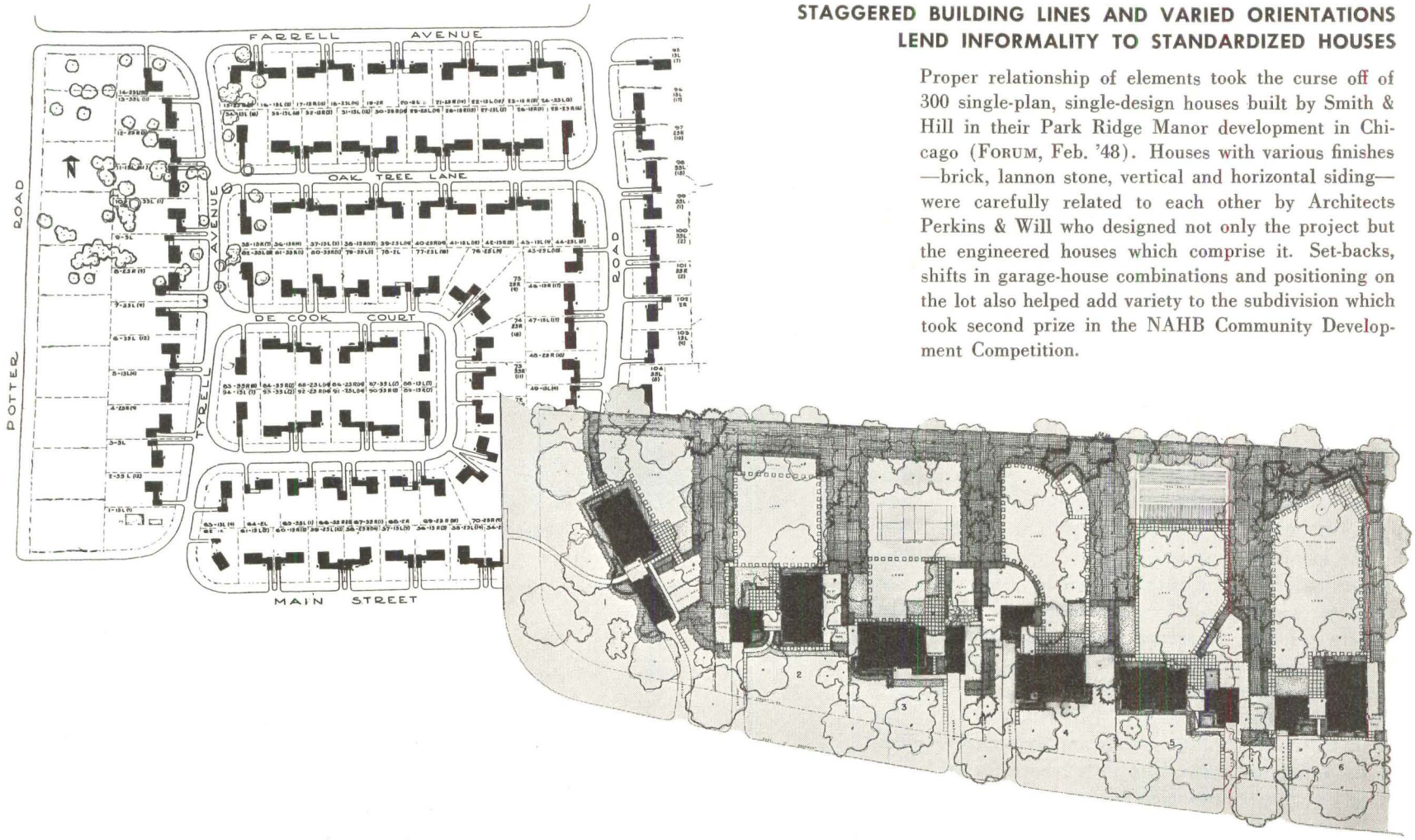
The Ain-designed project (p. 126), had a gridiron *fait accompli* which forced some original thinking on the site plan. At risk of wasting precious living space on the lot, Ain planned one street of houses with easily accessible, yet hidden, detached garages, entered via a rear alley. In the other Ain house plans are shifted this way and that to give each a touch of individuality. Many builders have learned to face houses overlooking the backyard rather than the street. This permits opening them to the garden, and provides a pleasant vista from the windows of principal rooms. Land-planning must, naturally, start at the very beginning and like house design, it requires expert advice to be successful.

Edward M. Allen



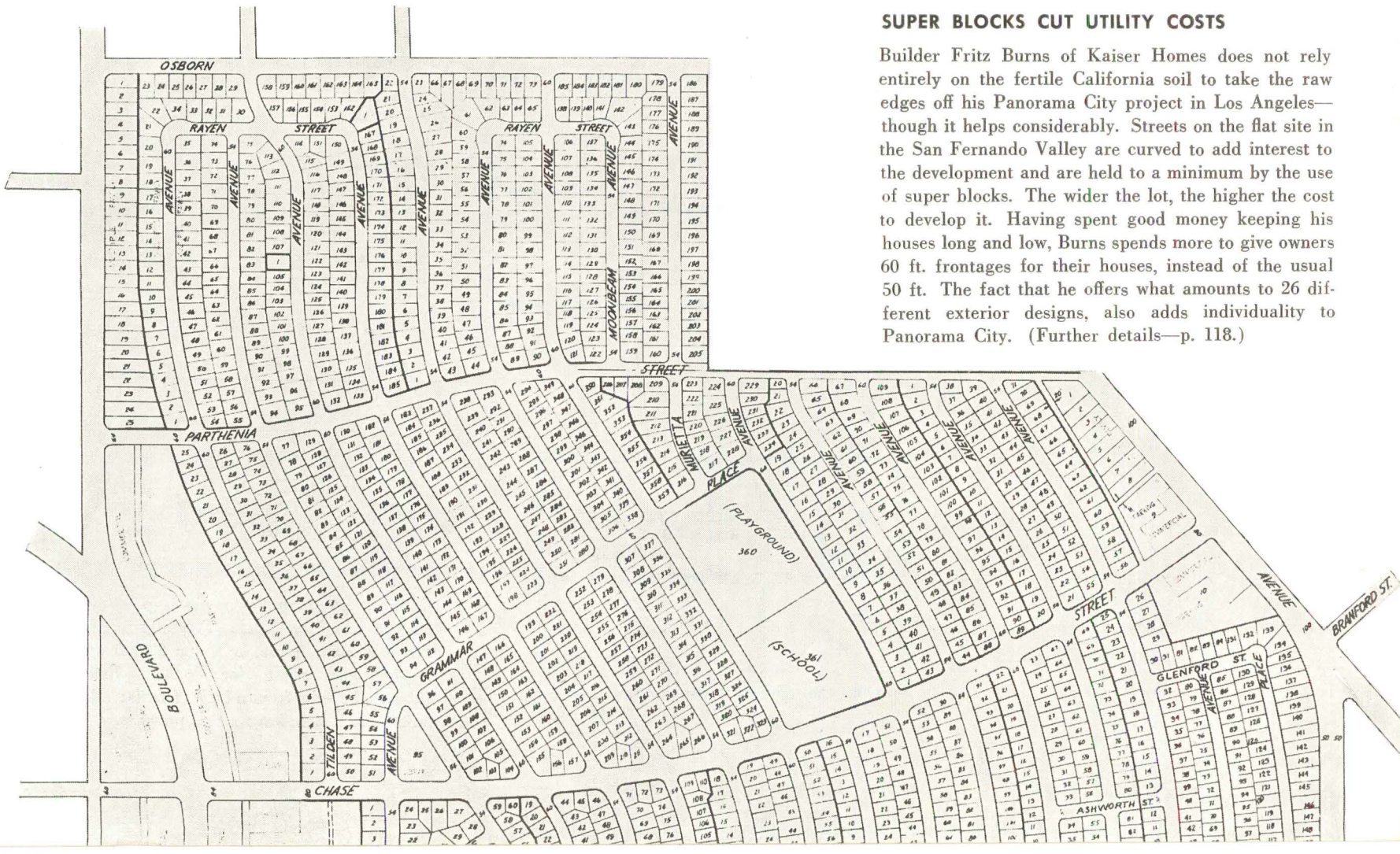
CONTOURS CONTROL THE PLANNING

Though it might have been simpler to push a bulldozer willy nilly over the land and set up an ordinary gridiron, Standard Properties Inc. of Washington, D. C., resisted the temptation. Result is that they came up with a site plan that took first prize in the NAHB Community Development Competition. Where contours made a cul de sac or loop the natural solution, one was planned; elsewhere, streets were curved to follow the outlines of the property. Large trees, having been left intact, are combined with variety in exterior design and color to further enhance the appearance of the entire project.



STAGGERED BUILDING LINES AND VARIED ORIENTATIONS LEND INFORMALITY TO STANDARDIZED HOUSES

Proper relationship of elements took the curse off of 300 single-plan, single-design houses built by Smith & Hill in their Park Ridge Manor development in Chicago (FORUM, Feb. '48). Houses with various finishes —brick, lannon stone, vertical and horizontal siding— were carefully related to each other by Architects Perkins & Will who designed not only the project but the engineered houses which comprise it. Set-backs, shifts in garage-house combinations and positioning on the lot also helped add variety to the subdivision which took second prize in the NAHB Community Development Competition.



SUPER BLOCKS CUT UTILITY COSTS

Builder Fritz Burns of Kaiser Homes does not rely entirely on the fertile California soil to take the raw edges off his Panorama City project in Los Angeles— though it helps considerably. Streets on the flat site in the San Fernando Valley are curved to add interest to the development and are held to a minimum by the use of super blocks. The wider the lot, the higher the cost to develop it. Having spent good money keeping his houses long and low, Burns spends more to give owners 60 ft. frontages for their houses, instead of the usual 50 ft. The fact that he offers what amounts to 26 different exterior designs, also adds individuality to Panorama City. (Further details—p. 118.)

PLAN AND DESIGN

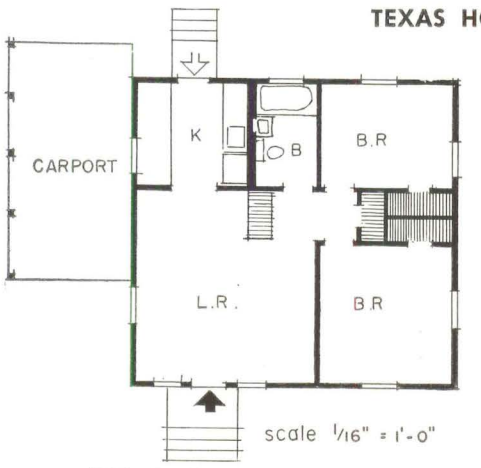
Cleanliness and simplicity are the essence of good design. Happily, the very cost-cutting operations of today's house builders mitigate toward design simplicity. It begins with the floor plan. On these pages are plans which teach lessons of economy and livability. Among these lessons and their teachers are the shop-assembled storage partitions used by Villa Shores Construction Co.; the minimum acceptable over-all dimensions in the Government's suggested "economy" plan; the winder stairs which lead to the center of the expansion attic in the house of Alan Brockbank; the concealed pier construction in Frank Sharp's new house in Houston; Tacoma builder Wollander's carport which may be converted into a bedroom; the combination kitchen-dining and dining-living rooms, which save space and simplify housekeeping in many of the builders' houses; the compact room arrangements in which every square foot is put to use, as in Freeburg's three-bedroom bungalows and in Gerholz' story-and-a-half 1949 model—a modification of Levitt's 1948 plan.

The increasing appearance of the open plan in small houses, as well as the attractive, unadorned exterior with its larger windows and lower pitched roofs is proof that modern thinking is influencing the merchant builder. This trend is demonstrated coast to coast in the new houses by Balch in Seattle, Smith & Hill in Chicago, Crawford in Louisiana and Williams in New York. Too often, however, a builder merely applies a modern cliché to his traditional house, with little regard for the result; many a picture window merely pictures a busy street, and many others are unprotected from the burning southern sun.

In the series of projects beginning on page 118 are other lessons in good design—notably those taught by the contemporary one-story houses of the Advance Development Co. (p. 126) and Lee (p. 130) in California, the surprisingly low cost work of Webb in Arizona (p. 140), and the clean two-story units built by Zamore in New Jersey (p. 124). It is not surprising that the really noteworthy houses in this issue of the FORUM are usually those in which architect and builder have cooperated, as demonstrated by the results of the Revere Quality House Institute's nation-wide program (page 110), and the local program of St. Paul's associated house builders (p. 108). Teamwork of this kind has proved profitable to the builder, the architect and the buyer.

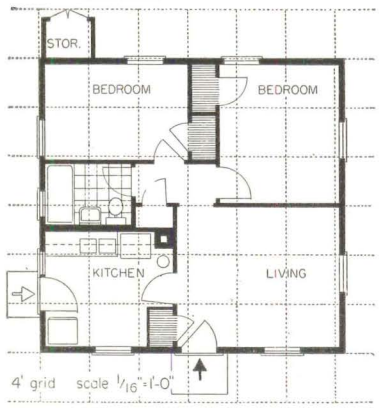
Bob Bailey





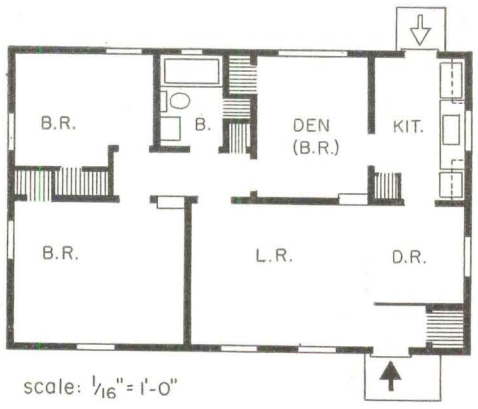
TEXAS HOUSE IS WELL DESIGNED FOR CLIMATE

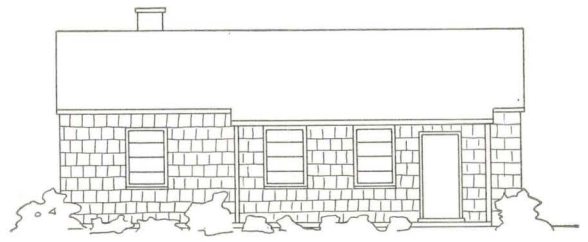
Builder Frank Sharp's small $6,300 Oak Forest house has two advantages over many of Houston's bigger houses: 1) A 3 ft. overhang protects occupants from blazing Texas sun and typical 45 in. rainfall and 2) the house is placed on the lot to catch the prevailing southwest breeze. Refreshing appearance, attributable to overhang, carport and use of varied exterior finishes, could be further enhanced (though at greater cost) by lowering house from piers to slab. Architects: Wilson, Morris & Crain.



GOVERNMENT'S MINIMUM PLAN

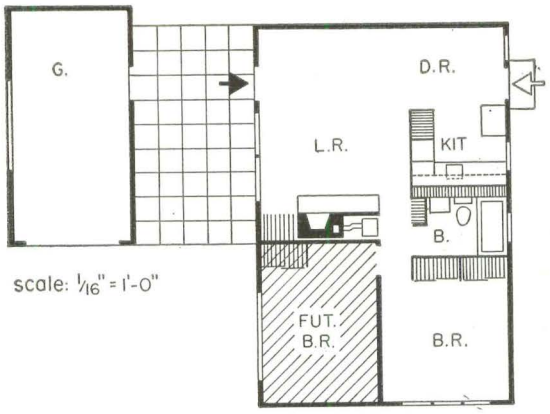
Plan at left is cited by the government's Economy Housing Program as an example for builders trying to cut costs. Hall space is the minimum required to assure privacy, back-to-back plumbing saves piping and vents, room dimensions are designed to standard lumber lengths. Despite fact that house is only 24 x 25 ft., it has adequate wall and storage space and good fenestration.



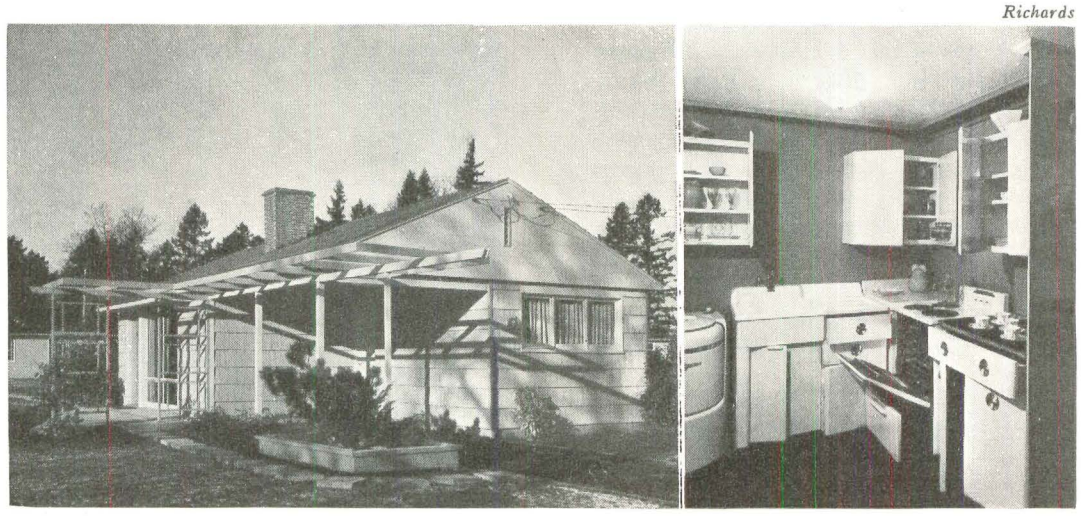


SMALL HOUSE BOASTS DUAL-PURPOSE ROOM

Compact planning has made it possible for Memphis builder Charles Freeburg to offer a three-bedroom house, left, for $8,000 and a two-bedroom house for $6,500. Exterior (above) benefits from a lack of frills; all materials used there have a real purpose.

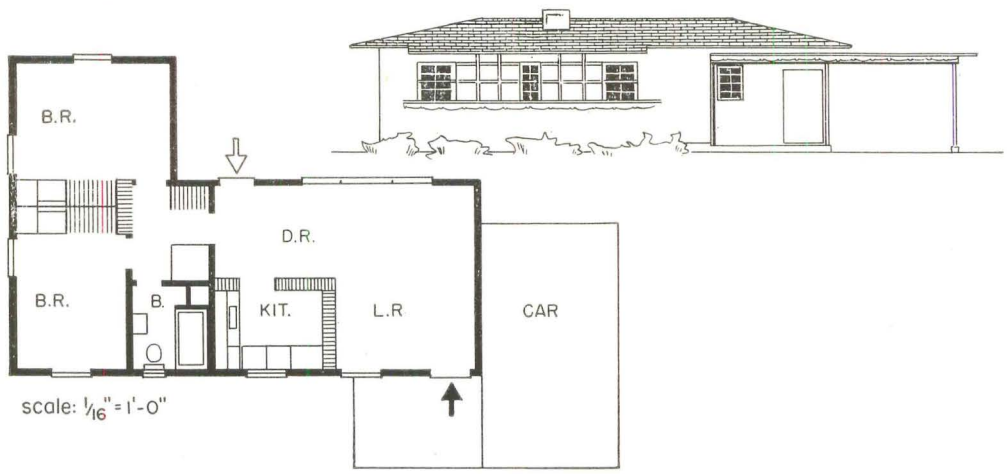


Richards



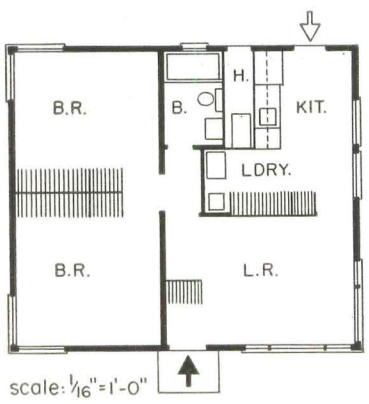
CARPORT PROVIDES EXPANSION SPACE

In design, plan and price, the W. A. Wollander prefab is a superior product. Absence of interior studding makes possible use of storage walls or plywood sheets for all partitions. Under-$7,000 price includes lot, fireplace, combination screens and storm windows, insulation, weatherstripping, overall carpeting and full bath. Photos show the fully equipped standard kitchen and carport which, when walled in, becomes a second bedroom.



OPEN PLAN BENEFITS L-SHAPED HOUSE

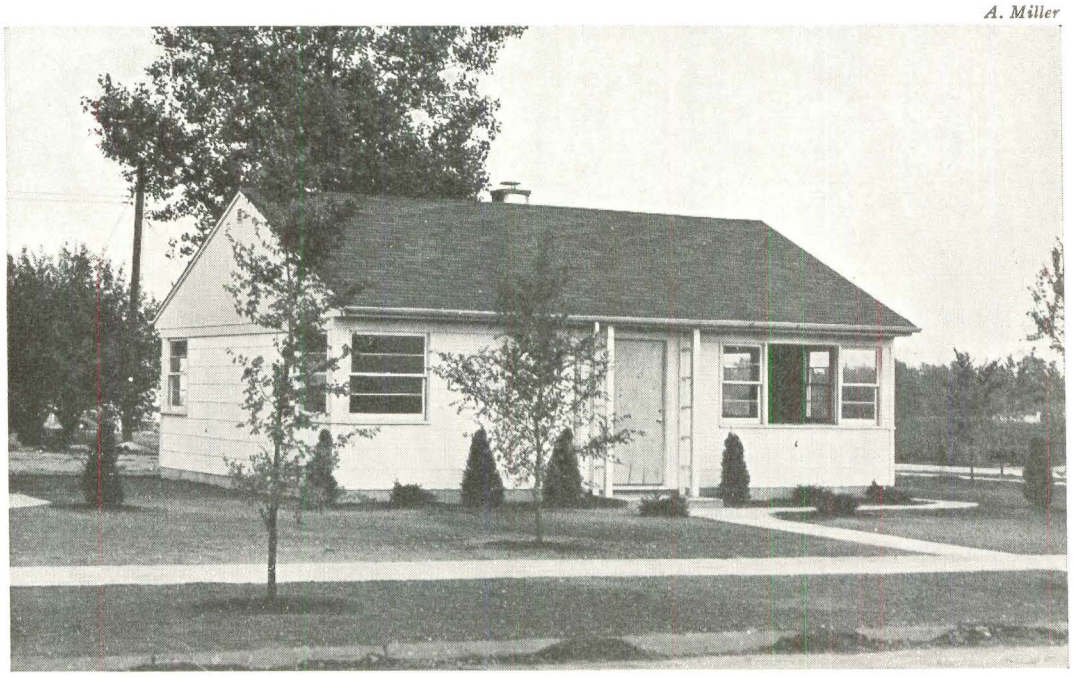
Florida builders Henderson & Gilmore achieve an air of spaciousness unusual in low cost ($7,500) house by separating the kitchen from the living-dining area by only a series of cabinets. Wall between bedrooms includes, besides ample hanging space, a dressing table and many drawers. Cross ventilation in all rooms, extra large window in living-dining room are especially valuable in the Florida climate.



MINIMUM PLAN HAS MANY CLOSETS

Ideas abound in this straightforward house by Architect Edward F. Schmaltz for Villa Shores Construction Co. in Indiana. Core of house is a prefabricated utility unit, furnace of which distributes warm air under entire floor through ceramic tile ducts. Though basementless, ample storage is provided in large floor-to-ceiling cabinet units. Selling price, $8,800, includes full bath, kitchen and laundry in two-bedroom model.

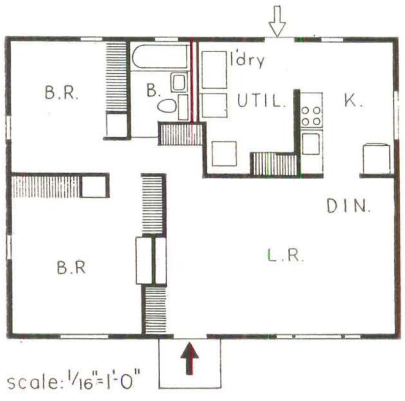
A. Miller

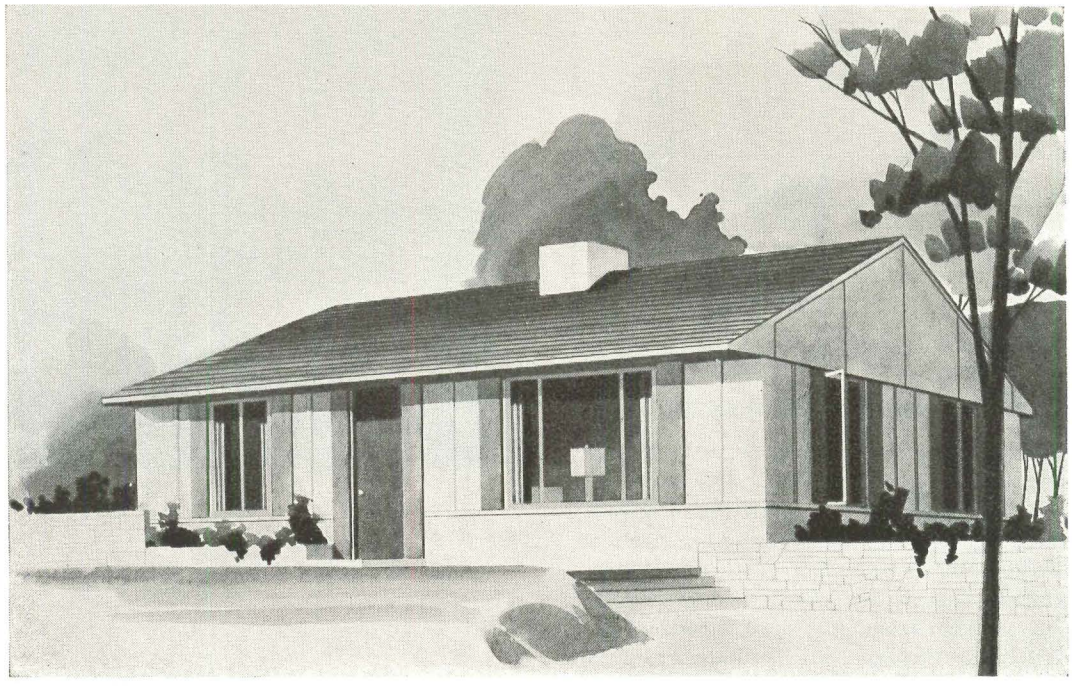


PLAN AND DESIGN

PANELIZED HOUSE FEATURES STORAGE SPACE

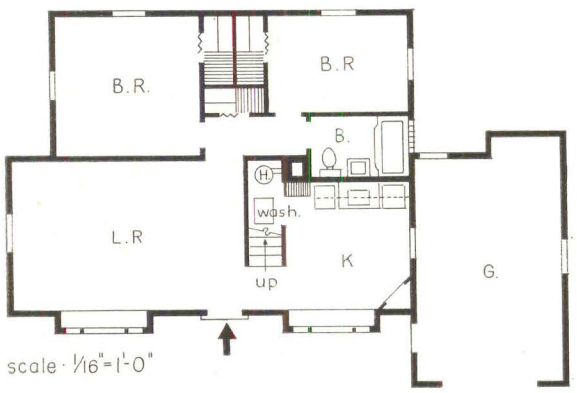
Simple lines of this new Smith & Hill house are adapted from their Park Ridge Manor house (FORUM, Feb. '48). The builders will erect the house on the owner's lot anywhere in the Chicago area for $7,200. Most appealing feature of house is the enormous quantity of storage space which includes built-in vanity in one bedroom and built-in drawers in the other. Like previous Smith & Hill houses, this one is designed to a module and engineered for production. Architects: Perkins & Will.





CANTILEVERED FIRST FLOOR MAKES HOUSE LARGER

Michigan builder Gerholz (p. 128) gets extra space on the first floor of his 1949 house by using cantilever construction. This also permits lowering the eave at the front, bringing the house closer to the ground. Large windows, unfortunately, still face the street rather than opening onto garden behind the house.



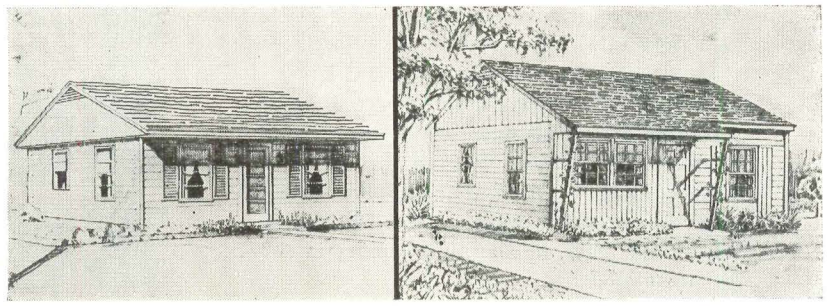
Crooks Studio



PREFABRICATOR OFFERS COMPLETE BUILDERS' SERVICE

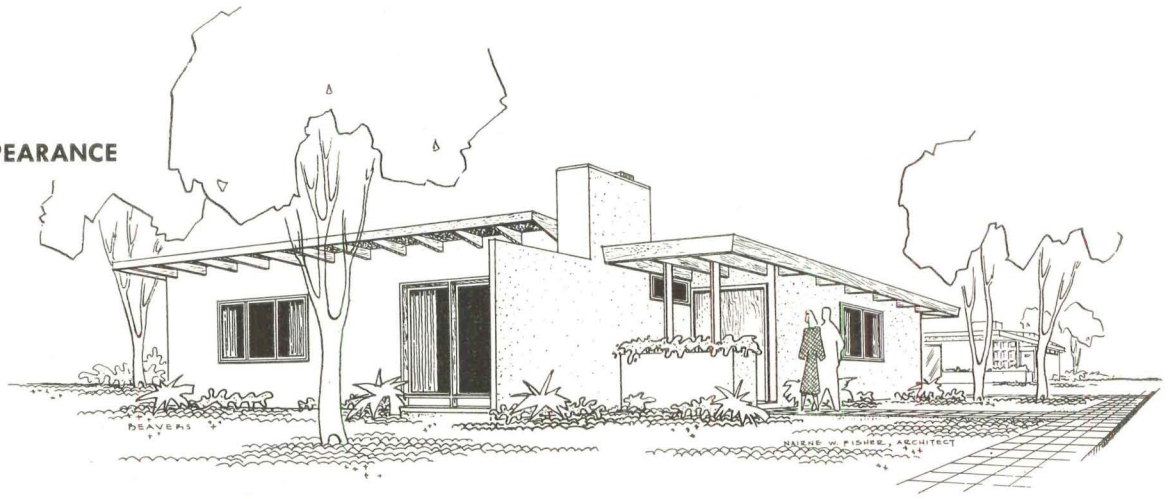
Crawford Corp. of Baton Rouge (FORUM, Mar. '49) not only supplies its builders with prefabs that can be sold for as low as $4,500, but a complete service to builders including project development, architectural and engineering service, mortgagee service and business and counseling service. Minimum two-bedroom houses are available in various exterior wrappings.

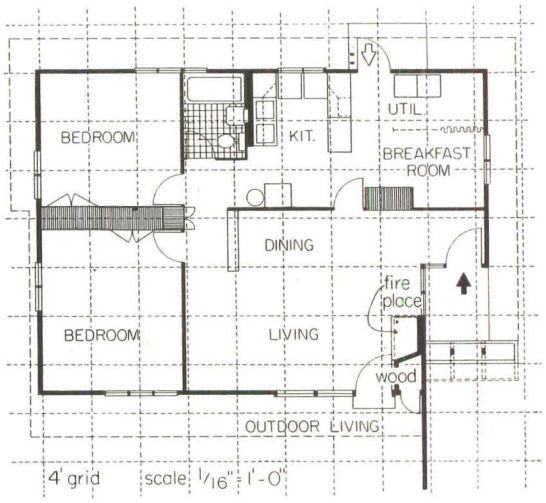




FLAT ROOF CUTS COSTS, IMPROVES APPEARANCE

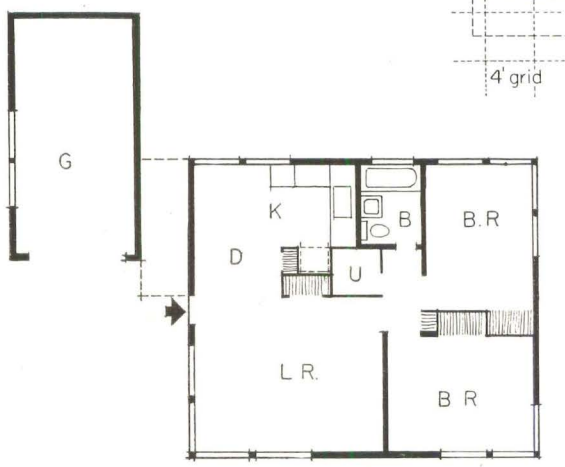
The controversial flat roof will be used by Chicago Architect Nairne W. Fisher to cut costs on his 120-house project in Markham, Ill. One secret behind the $6,750 to $8,200 price tags on his houses is the use of 3 in. insulative panels for exterior walls and as a base for his built-up roof. Fisher, who with two associates owns the F-H-O Construction Co., will use conventional site cutting and fabrication methods except for panels which are precut. Project is financed without FHA assistance.

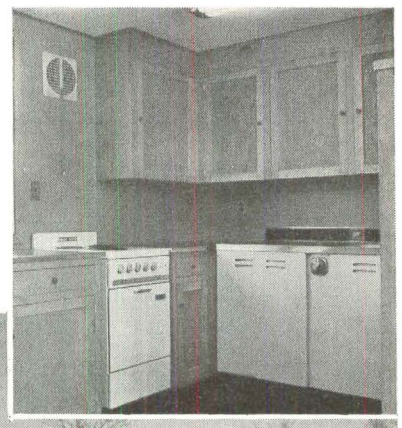




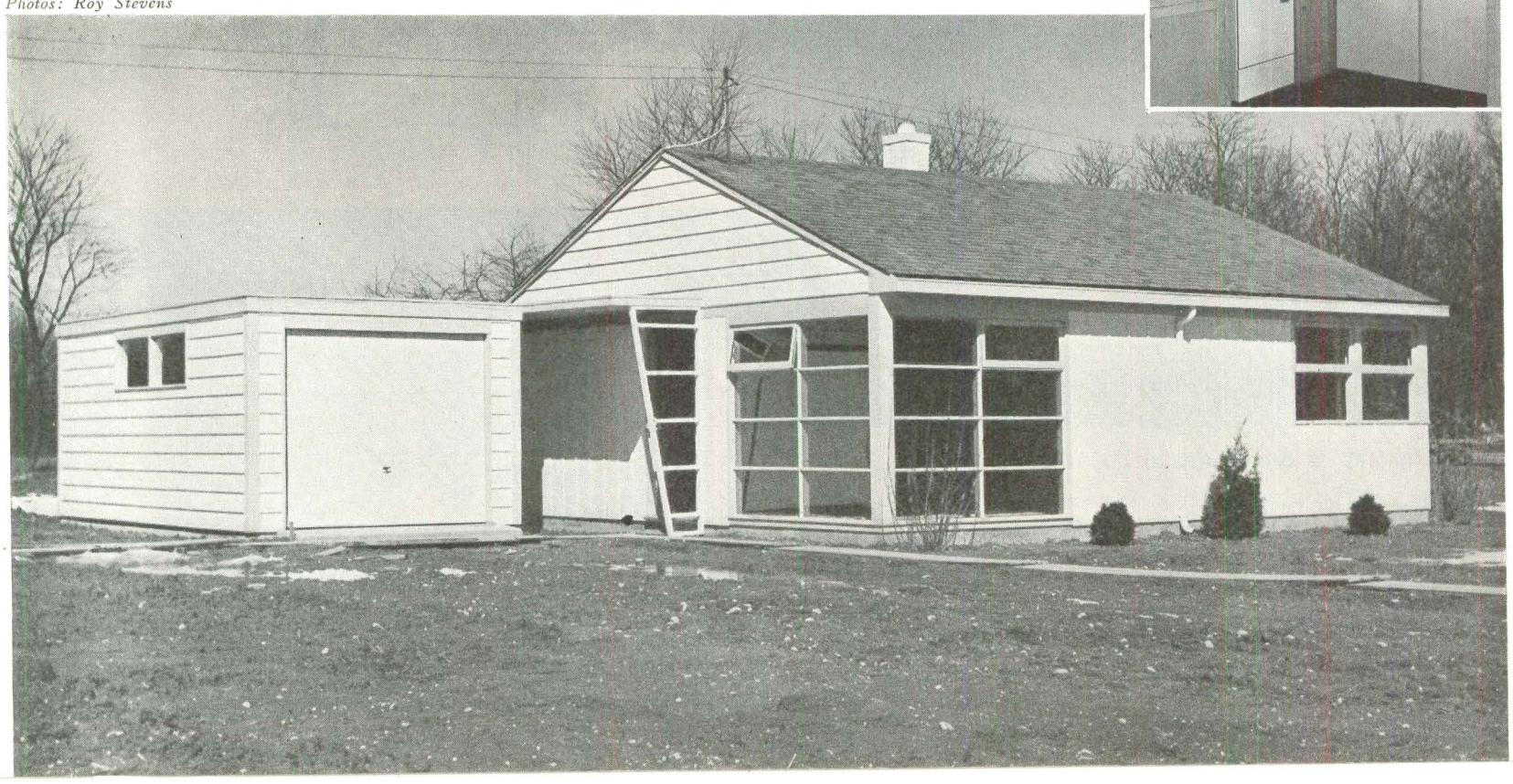
WINDOW WALLS MODIFY THE CAPE CODDER

Acting as his own fabricator, and selling his product to builders outside his own exclusive Long Island domain, Builder Cy Williams can put up this excellently designed house for $8,900. This neat arrangement results from cooperation between Williams and his architect, James Scoville. The two have worked since war's end to produce this low cost panel house. Williams' factory now turns out panels for a house a day.

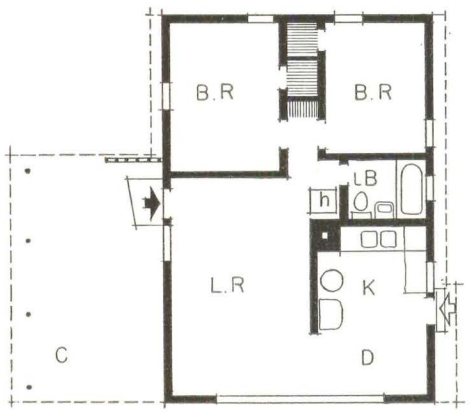




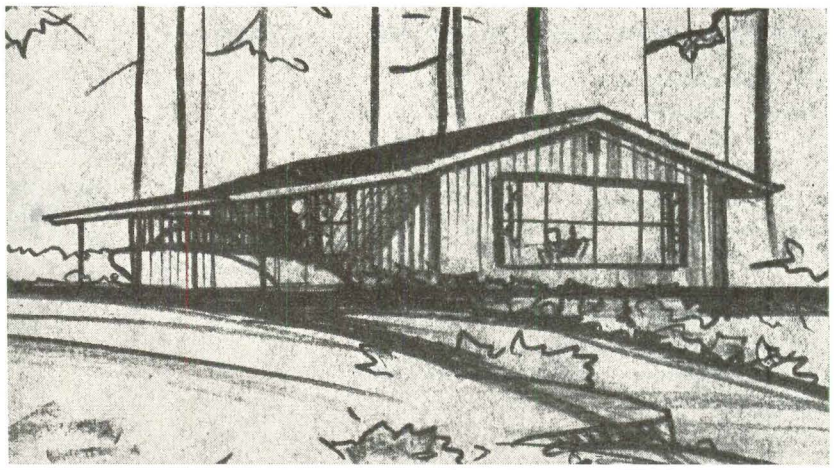
Photos: Roy Stevens



PLAN AND DESIGN

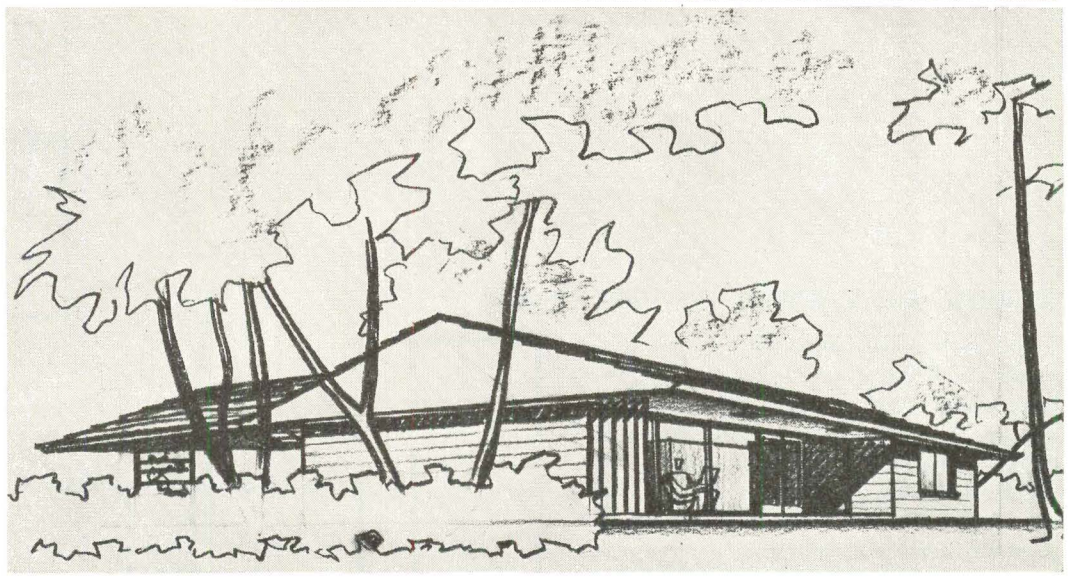


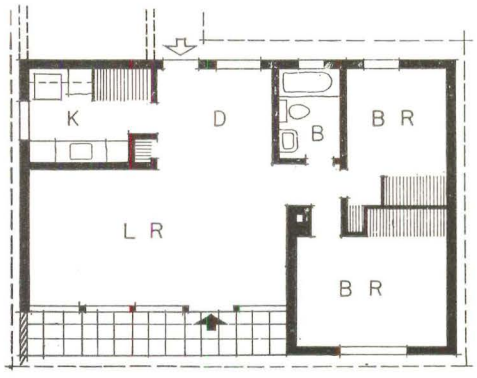
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LARGE GLASS AREAS PROVIDE LIGHT

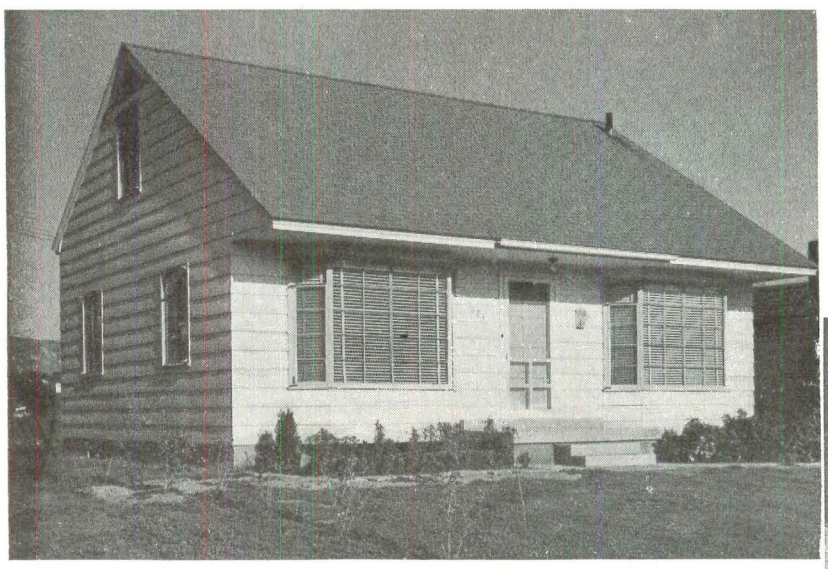
Not content with a standard picture window, Architect John Ridley includes an entire wall of plate glass in this 700 sq. ft. economy house for Seattle's Albert Balch Enterprises; windows elsewhere are stock sash. Use of only the minimum number of interior partitions permitted by FHA produces an open plan.

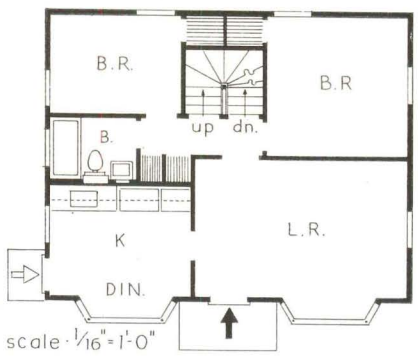




scale 1/16" = 1'-0"

Joern Gerdts

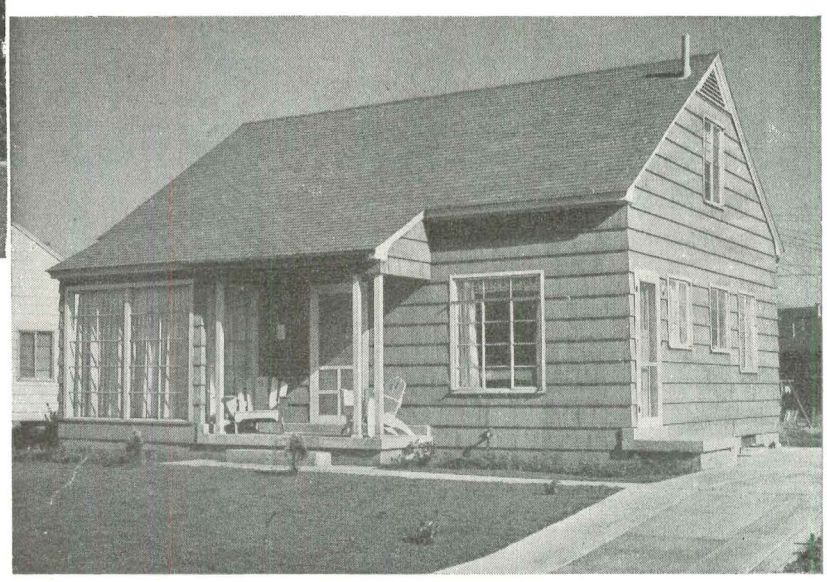


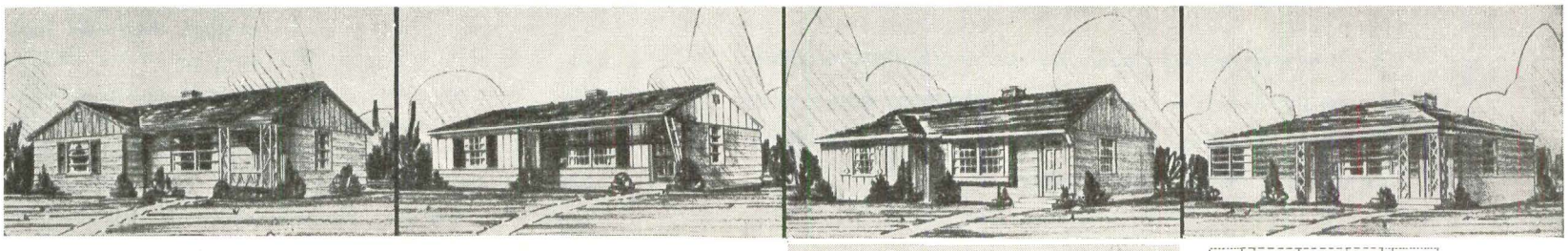


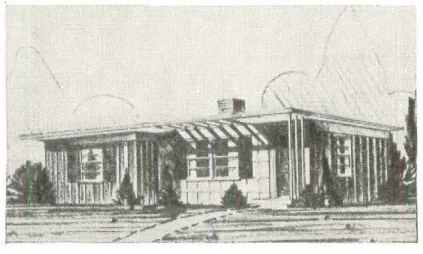
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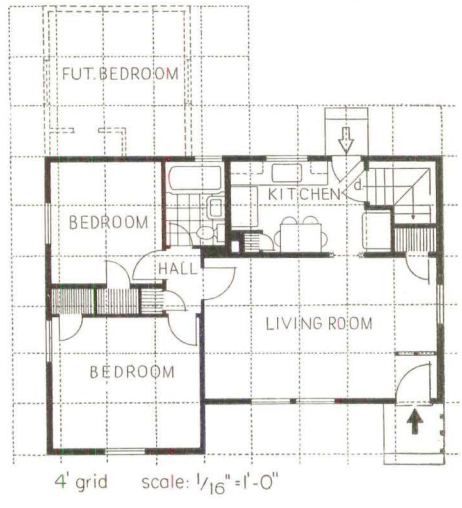
EXPANSIBILITY IS BIG FEATURE OF THESE HOUSES

Apparent height of builder Alan E. Brockbank's Salt Lake City houses is minimized by low roof line in front. Large windows are incorporated in a traditional design to improve exterior appearance and interior lighting. Seven foot ceilings in attic provide space for two extra rooms. Full basement accommodates storage and recreation space.









ARCHITECT DESIGNS FOR BUILDERS ASSOCIATION

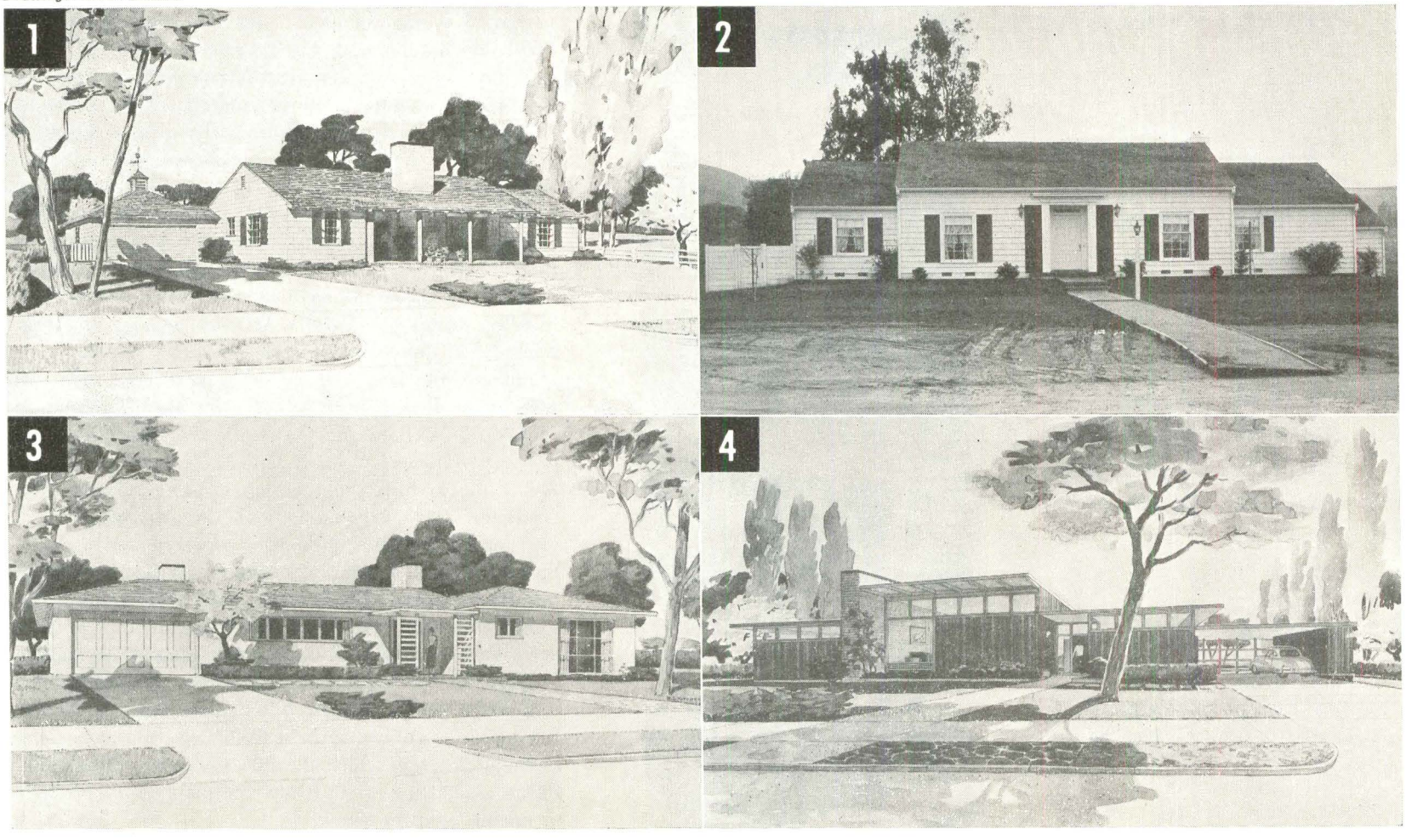
St. Paul Home Builders Association turned to a fellow member, Architect Norman Johnson, for the design of an economy house. Six exterior variations are possible on Johnson's single plan; five appear above. Plans may be used by any member of the association upon payment of a small fee. Selling price of the house is $8,900, including $750 lot.

RANCH HOUSE WINS STYLE VOTE IN CALIFORNIA

Growing popularity of the ranch house is evidenced by fact that it nosed out even the clean colonial in a vote taken among home-buying prospects by California builder Bohannon (p. 136). Principle difference between them is in plan; Colonial is tight, even has a dining room, while ranch house has an open plan.

1. Ranch house	**4,825**
2. Colonial	**4,708**
3. Conservative modern	**3,666**
4. Radical modern	**1,756**

Drawings: Molin Studios



PLAN AND DESIGN

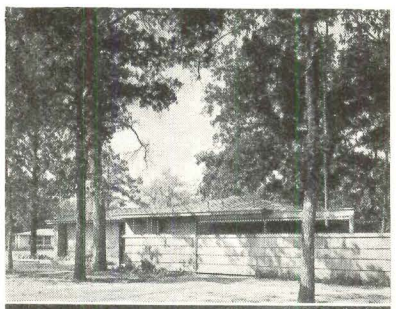
Eight demonstration houses by selected builder-architect teams are one year's result of an ambitious, nation-wide program to raise design and construction standards throughout the building industry

Revere Quality House Institute

C. W. Smith, Executive Director

John Hancock Callender, Technical Director

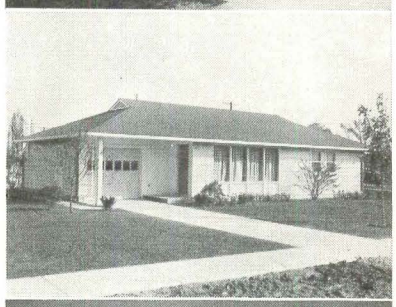
LOCATION: Houston, Tex.
BUILDER: Frank W. Sharp
ARCHITECTS: Mackie & Kamrath
Published: FORUM, *Sept. '48*



LOCATION: Sarasota, Fla.
BUILDER: J. E. Lambie, Jr.
ARCHITECTS: Twitchell & Rudolph
Published: FORUM, *Oct. '48*



LOCATION: Parma Heights, Ohio
BUILDER: Maurice J. Fishman
ARCHITECT: W. D. Riddle
Published: FORUM, *Jan. '49*



LOCATION: Springfield, N. J.
BUILDER: Suburban Properties, Inc.
ARCHITECT: Kenneth Kassler
Published: FORUM, *Feb. '49*



LOCATION: South Bend, Ind.
BUILDER: Place & Co.
ARCHITECT: L. Morgan Yost
Published: FORUM, *Mar. '49*

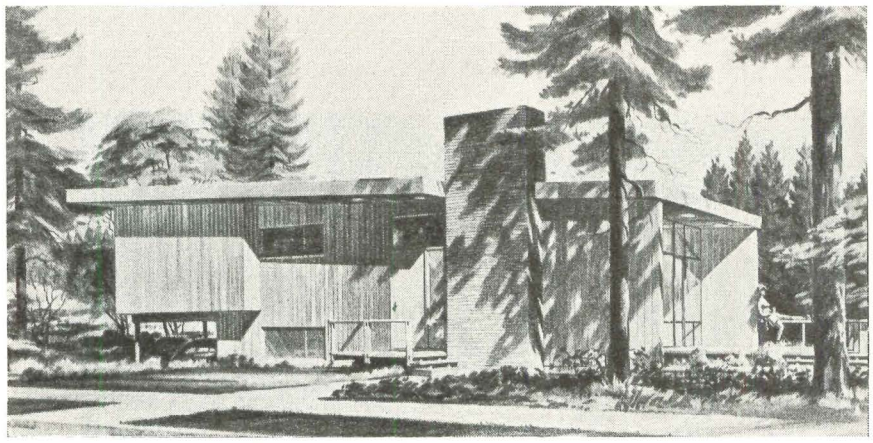


It has often been said that the building industry spends less money on the design of its product than does any other large scale industry. The program of the Revere Quality House Institute, started last year, is one attempt to improve the industry's most important product: the medium-priced home. Eight pilot houses, offering quality construction and design, have already been built under the Institute's auspices. The approach is strictly an economic one, rather than a social or esthetic crusade. The Revere Institute, an autonomous public service organization sponsored by Revere Copper & Brass Inc. and Architectural FORUM, is interested in convincing builders that quality specifications and good architecture are saleable commodities which will increase both the profit and reputation of the builder who uses them. The advantage to Revere Copper & Brass is not a direct one, but simply the long-range benefit which will accrue from a general improvement in building.

Revere feels that quality design and quality construction can best be encouraged by promoting the hiring of skilled architects by the ordinary builder. Accordingly, builder-architect teams have been organized by the Institute in various regions of the U. S. and their houses submitted to rigorous criticism from drawing board stage to finished product. In return the houses receive local and national publicity paid for by the Revere Institute. Cleveland Builder Maurice J. Fishman was so impressed with the collaboration of Architect W. D. Riddle that he has retained him to design a new group of low cost homes. South Bend builder Andrew S. Place, although not sold on the contemporary design of his Revere house, has been converted to the Institute's basic premise. His current 350-house development will be architect-designed.

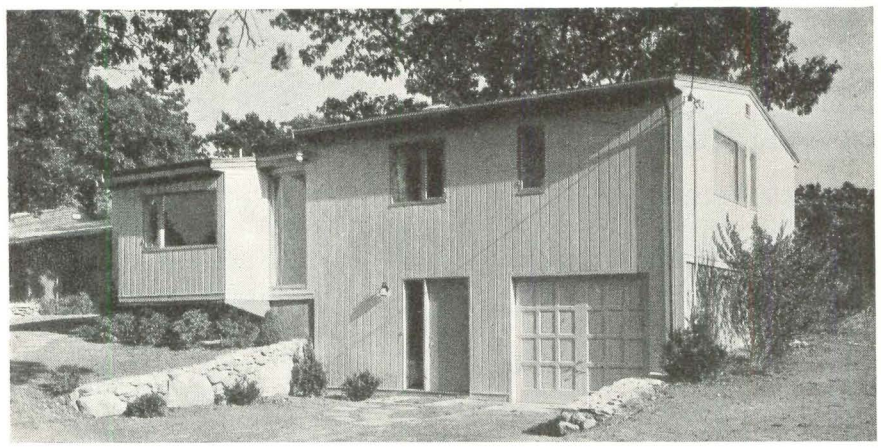
With a successful first year to its credit, the Institute has planned a more ambitious program for 1949. Rather than single houses, each builder will put up a project of at least ten homes. This will combat the common builder objection to architects, i.e., expense. Divided between ten units, an architect's fee becomes a manageable part of the unit building cost. The plus factors of good planning and economical use of materials contributed by the architect more than balance this divided cost. Seven new builder-architect teams are already at work on these multiple house groups and more are scheduled to start soon.

Future programs will be even more expansive. At present the Revere Institute feels that it is beginning to impress the builder and the public with the advantages of quality homes. Soon it hopes to attack on another front: the architectural and engineering schools. The Institute is now negotiating with several colleges on a coordinated program of housing research and development. Eventually finance companies may also be brought into the program. The Institute feels, as do many architects, builders and customers, that present lending policies need reappraisal if both quality and quantity production are to prevail in the housebuilding field. Should the current Taft-Ellender-Wagner bill become law, the Revere Institute hopes to cooperate with the government housing research program which the bill envisions. Meanwhile, Revere is showing what private enterprise can do by itself in raising industry standards.



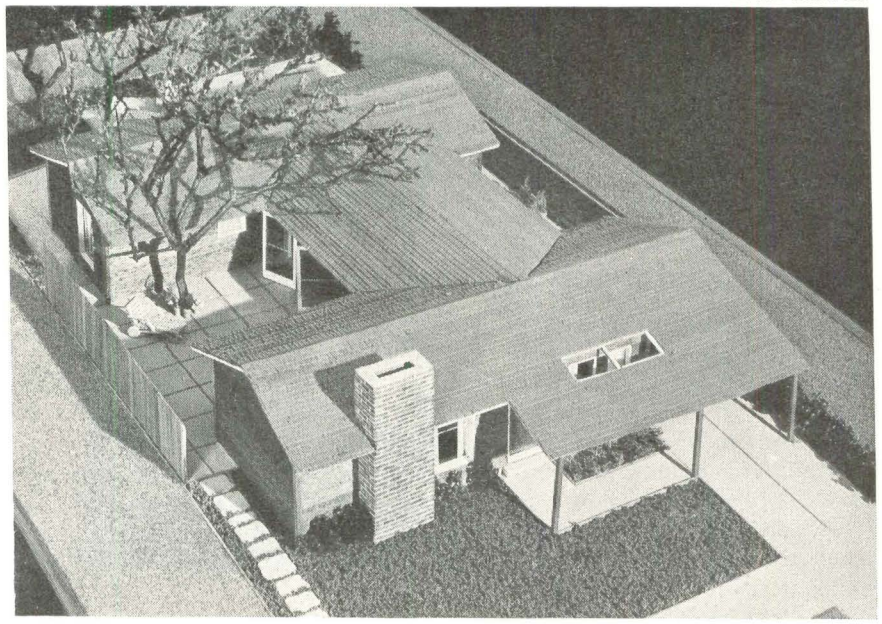
SEATTLE HOUSE, built by Albert Balch and designed by Chiarelli & Kirk is a three-level dwelling which takes advantage of a dramatic view and blends into natural surroundings by use of native materials. Windows are large on the view side, small toward the street. Sliding panel at floor level of multi-use playroom allows housewife to supervise children from lower level kitchen.

George H. Davis Studio

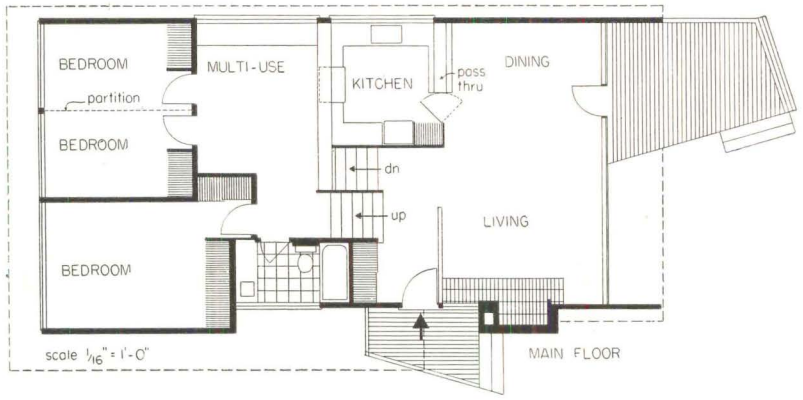


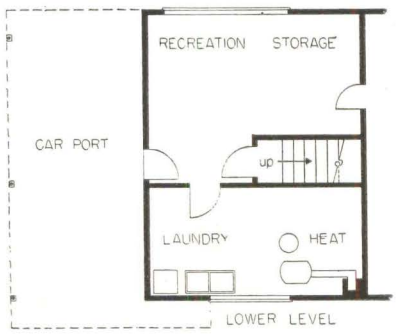
BOSTON HOUSE, built by Arnold Hartman and designed by Samuel Glaser is another solution to the problem of building economically on a sloping site. Main entrance, garage and utilities are at street level; kitchen and glass-walled living room with adjoining terrace, on the second; three bedrooms and bath, on the third. By combining first two floors, house will fit on level site.

Braun-Childress



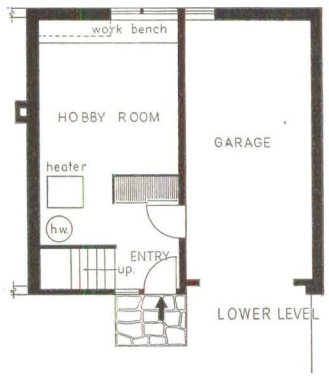
SAN FRANCISCO HOUSE, built by Williams & Burrows, Inc. and designed by Joseph Esherick, Jr. solves the common problem of providing space and privacy on a small (50 ft.) city lot. The U-shaped plan is turned sideways to the street and the patio thus formed is shielded from neighbors by high fencing. All major rooms face on the patio. This design boasts larger floor area on a smaller lot than any other Revere house.

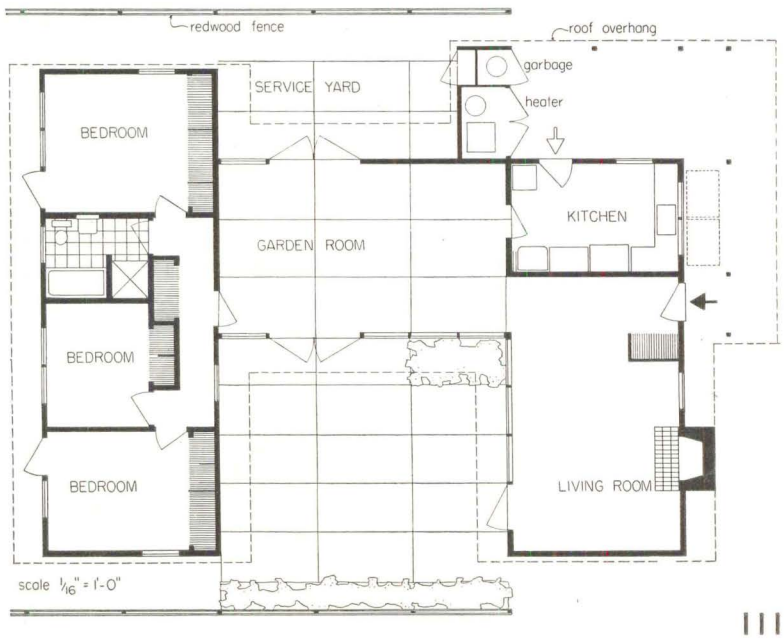






scale: 1/16" = 1'-0"





CONSTRUCTION

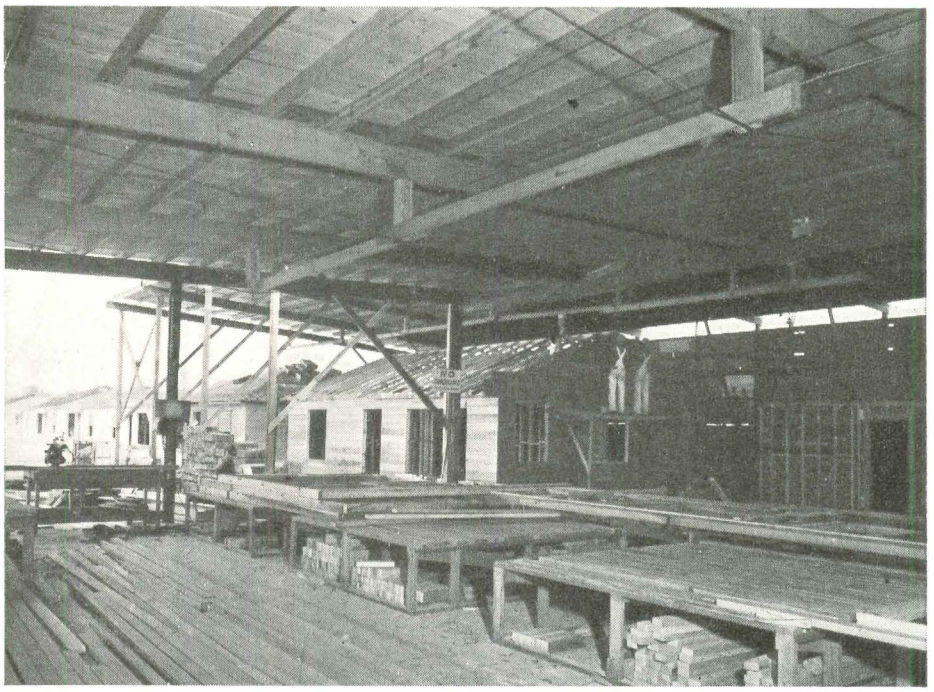
"Antiquated, ancient, 18 Century, inefficient" are a few of the adjectives used by radio commentators, writers, manufacturers and some others to describe the practice of America's home builders. These opprobrious terms were used in 1945, when builders were struggling to get under way, and they are used today. Like political dopesters, these experts had better have another look. Builders discovered early in the postwar period that prefabrication was not the bugaboo it first seemed to be—many (like Pennurban, p. 133) are erecting houses manufactured by prefabricators. Others (like Levitt, p. 84) precut and prefabricate parts in their own shops. As to the ratio between factory and site fabrication, there are nearly as many variations as there are builders. Mechanical and design considerations, as well as location of project, often dictate which parts of a house are best shop-fabricated and which site-fabricated.

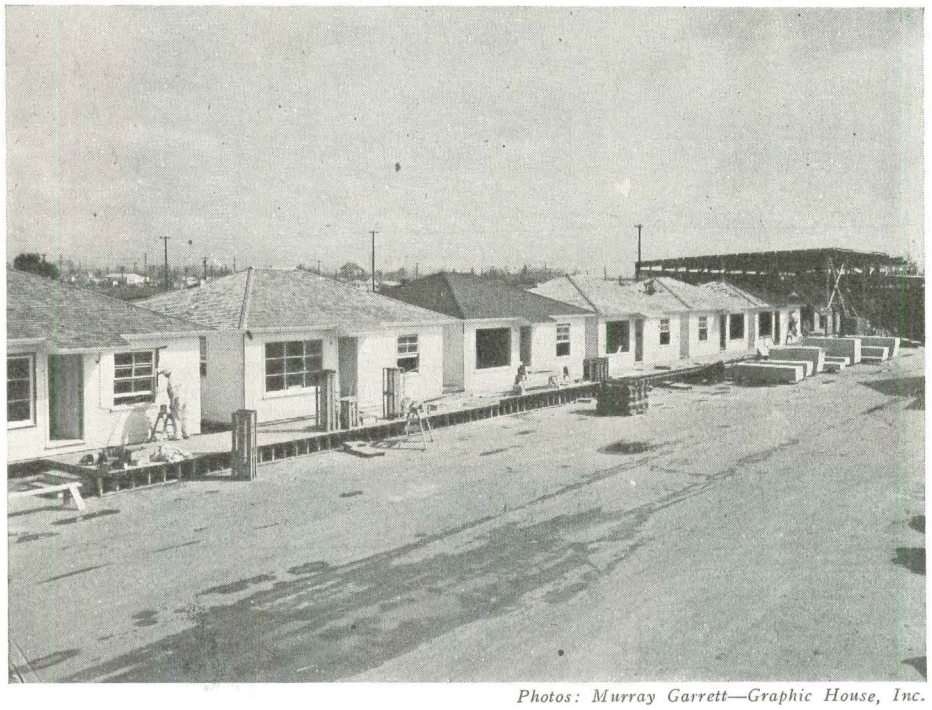
The recent trend to shop fabrication is being reversed by Californians Burns (p. 118) and Bohannan (p. 136). Burns, in fact, discovered that some traditional building methods, such as lath and plaster for walls, are valuable aids in reducing the number of times material is handled. Gypsum lath and plaster are moved directly from railway siding to the very house where they are to be applied. This obviates moving wallboard from siding to storage area, from storage to cutting shop, from cutting shop to fabrication shop and, finally, from fabrication shop to site.

A few cost-cutting devices are brand new but most are merely clever variations of old practices. The seemingly impossible dream of turning finished houses off a production line, just like automobiles, has been achieved by Mobilhome in California. A ten-day assembly line with a ten-house capacity turns out a house a day, deposits it on a large house-mover's dolly which carts it to the site. On the opposite coast, Manhassett's Patrick J. Callan cuts down on construction time by employing his patented, modularly-designed steel concrete form system.

Michigan builder Gerholz (p. 128) has borrowed one of modern architecture's favorite devices, the cantilever, and put it to use as an economy measure. His house is cantilevered beyond its foundation thus saving foundation construction costs and providing a larger first floor area. Another Michigan builder, Charles A. Bowser, uses a variation of the tilt-up wall system. His walls are fabricated, complete with sheathing, before being tilted up. Using this method, Bowser roughs in a house, including roof, in one day with a crew of five. Thus the house is a closed-in shop; even the chimney is erected after the roof is on. Especially designed roof trusses effect savings for builder Fishman on the Cleveland Revere Institute house (FORUM, Mar. '49). The Buehner Cinder Block Co. in Salt Lake City has developed an unusual radiant panel heating system for its model home. It is the basic sales tool for their entire project.

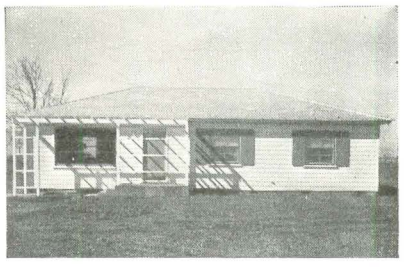
Gregory Ain is experimenting with post and lintel construction in his new housing project (p. 126) and the modular coordination employed in the industry engineered house (p. 146) is designed to cut material waste to the bone for even the smallest operative builder.





Photos: Murray Garrett—Graphic House, Inc.

COMPLETE HOUSE IS MOVED FROM ASSEMBLY LINE TO SITE

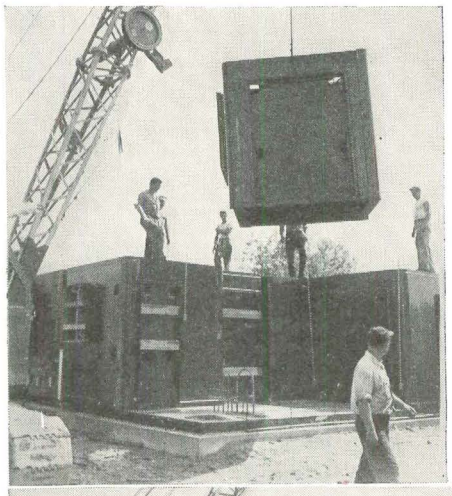


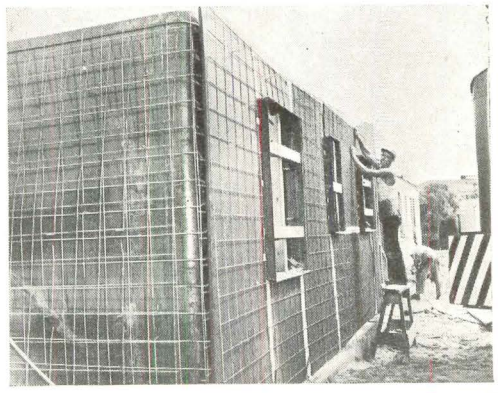
It takes California builder Hugh Curran precisely ten days and ten operations to get a completed Mobilhome through his assembly line and onto a mover's dolly. First four operations, including application of roof, are completed under a shed, the remaining six steps are done outdoors. After house is moved to its concrete block foundation, it takes but one day to hook-up electrical and plumbing lines. Curran claims that it takes only 55 man-days of labor to fabricate his house. Through quantity buying he hopes to cut $1,000 from each of his basic price tags which are now $4,700 for a one-bedroom house and $8,550 for the three-bedroom model. Curran's first plant, in Bakersfield, now turns out a house a day.

MONOLITHIC CONCRETE HOUSE IS POURED IN THREE HOURS

A monolithic concrete house is completed in six days by Long Island builder Patrick J. Callan's patented method. Polished steel forms are lowered into place by crane and then adjusted by the crew to within fractions of an inch. Forms for interior partitions are set up first; work progresses outward until chimney and gable forms are in place. Rigid insulation is set up between inner and outer matrices; steel mesh holds the insulation in place, reinforces the concrete wall. Erection and adjustment of the form takes two days, actual pouring of the shell, just three hours. Builder Callan expects, when he gets into large scale production, to complete a house every six days. After forms are removed from completed shell, they are machine scoured with steel wool, oiled and set on the next slab.

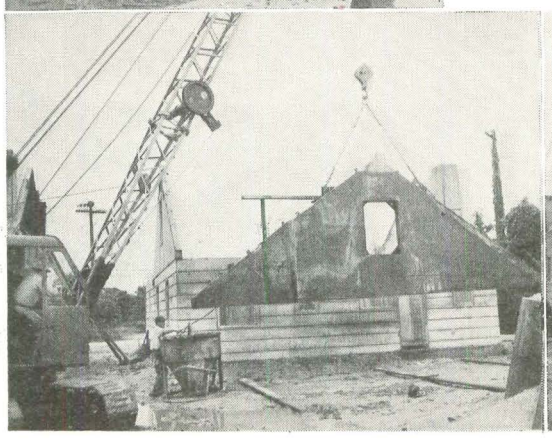
Major jobs to be done, once the concrete shell has set, are installation of roof, finish floor, sash and doors. Roof is of composition shingles over standard sheathing and 2 x 6 in. rafters. Insulated floor slab contains copper panel heating coils and is finished with asphalt tile. The two-bedroom house covers 900 sq. ft., plus a 220 sq. ft. garage. Price for the completed house, including a 50 x 100 ft. landscaped plot, is $11,900.

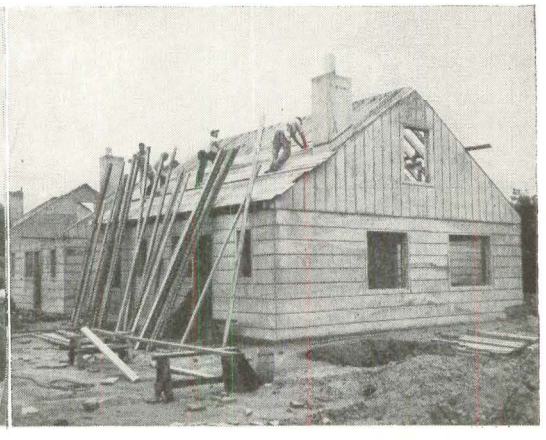




CRANE LOWERS FORM FOR ENTIRE ROOM INTO PLACE

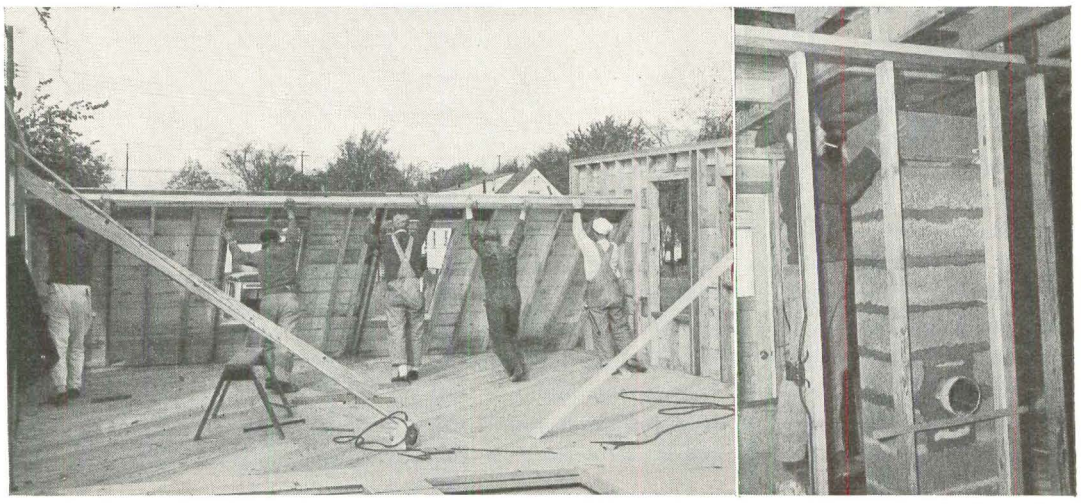
GABLE FORM IS REMOVED FOR USE IN NEXT HOUSE





TILT-UP WALLS AND PRECAST CHIMNEY BLOCKS SAVE TIME

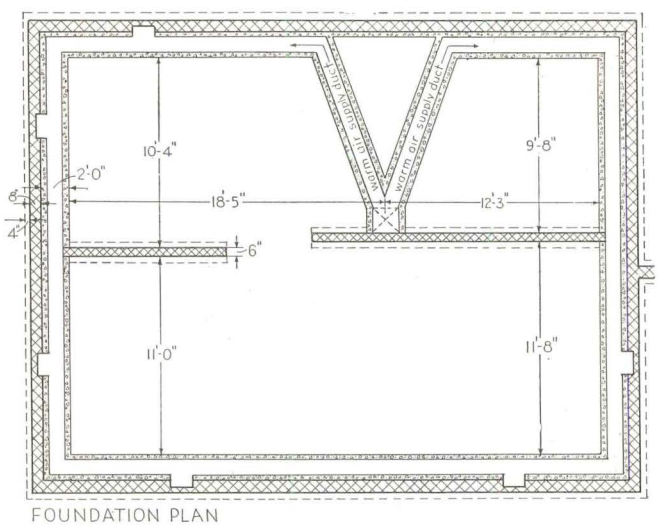
Tilt-up and other time-saving methods enable builder Charles A. Bowser to rough in a house in one day with a five-man crew. Each carpentry operation is completely detailed on the plans, and lumber is precut and pre-marked before delivery. Result is that Bowser makes the most of unskilled labor; his crew consists of three carpenters, two apprentice carpenters and ten laborers. All operations are carefully scheduled even to the delivery of lumber. Bowser's method permits all work, including erection of chimney (comprised of precast block) to be carried on under cover after first day.



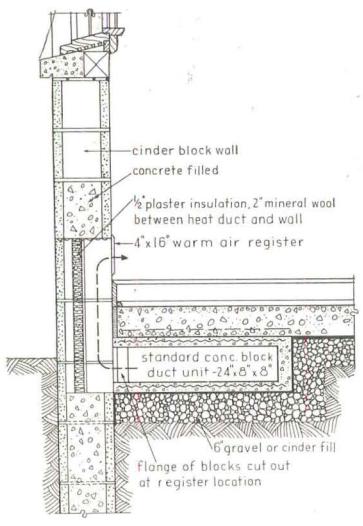
WALL IS SHEATHED BEFORE BEING TILTED UP. CHIMNEY IS BUILT AFTER ROOF IS ON

PERIPHERAL HEATING SYSTEM IS DESIGNED FOR ECONOMY

The unique heating system in builder John Breuhner's Salt Lake City model house is the direct result of his attempt to cut building costs. Feeling that a cinder block house built on a concrete slab was the cheapest method of construction, Breuhner developed a way to heat the slab economically. Crux of the heating system is an oversize concrete block (8½ x 24½ in.) made by Breuhner. The blocks are laid around the periphery of the slab and serve as ducts to carry warm air directly into the rooms. Since the duct work is continuous, warm air also heats up the entire floor. Ducts receive air from a plenum chamber located directly under the first floor heater. Cold air returns are located in the ceiling.



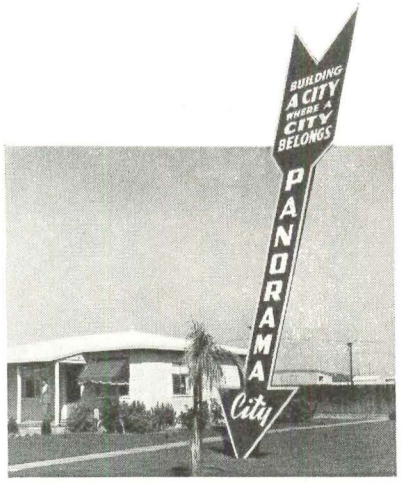
FOUNDATION PLAN



SELLING

To draw attention from Americans, all of whom are essentially promoters themselves, a merchandising or promotional scheme must be very fresh indeed. Selling houses by the dozen or by the thousands offers a challenge even to the most hardened salesman. As might be expected, the most original promotional thinking in the field comes from California and, particularly, from Fritz Burns (p. 118). Elsewhere in the west, builder W. P. Atkinson sells his Shetland Acres ranch-style houses by offering prospects' children a shaggy pony if their family buys a house. This is only one of Atkinson's promotional ideas which run the gamut from small, informal parties to gala barbecues for 400 and more people. The J. E. Merrion Co., Chicago builders, find present owners of their houses are their best salesmen. Eschewing advertising, when opening their Merionette Manor project, they invited Mayor Kennelly and 700 previous buyers of Merrion homes to dedication ceremonies and a party. Result was, that without further promotion, Merrion sold all houses in the first two blocks of its new project in two days. At present they have 1,800 veteran-buyers on a waiting list. On the other hand, Indiana's National Homes Corp. backs up its builder-dealers all over the country with national advertising.

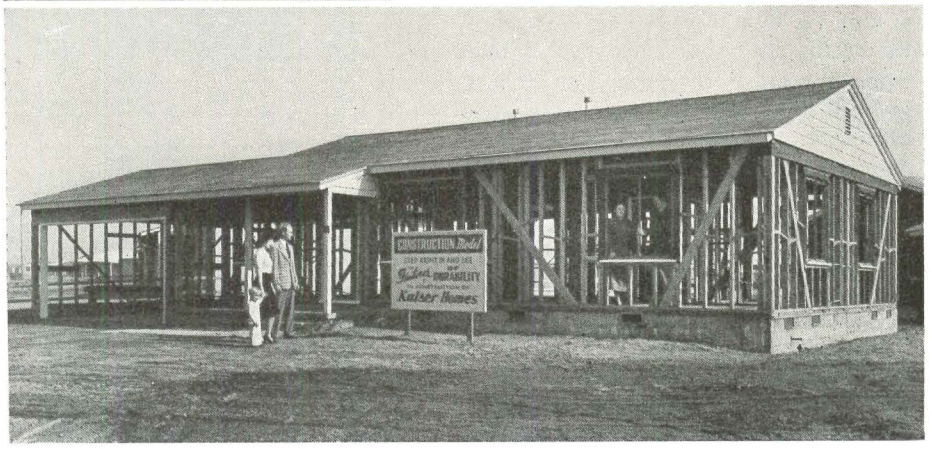
In the East, promotion is not so important—yet. Even so, in staid Boston, the Hermar Construction Co. ballyhooed its Oak Park Manor Development by having screen star Martha Raye break through the cellophane to open its first house. In Levittown, L. I., (p. 84) where the problem seems to be to keep buyers *away* rather than attract them, builder William Levitt provides a $175,000 swimming pool with every 1,000 houses. Two other Long Island builders, Northcrest Gardens and Fraser Homes, each offers an extra to buyers of its homes. Builder Milton Bernstein of Northcrest gives a 90-day guarantee on the workmanship and materials that go into each of his houses. Fraser, recognizing that a large part of the population of its project would be made up of young-marrieds, recently awarded a $1,000 savings bank life insurance policy to the first child born to a resident of Fraser Homes development. The last word is yet to be said in the promotion of small homes but, clearly, builders will be prepared to meet the age-old problem of sales resistance if and when it arrives.



IT IS NOT THE ARROW, BUT WHAT IT LEADS TO, THAT SELLS BURNS' PANORAMA HOUSES

Customers who still remember the "green lumber" scareheads of yesteryear are soothed by Fritz Burns' skeleton model; here they find out exactly how these houses are built and what kind of material goes into them. Just next door, the customer may look at completed examples of each model and he rarely escapes Burns' 40-man sales team.

Dean Vannice



COUNTRY-WIDE ADVERTISING PROGRAM BACKS NATIONAL HOMES' BUILDERS

This full page, four-color Life advertisement lends prestige to the builder using National Homes merchandise, helps him sell his customers. Copy says that National is a reliable old firm with thousands of satisfied customers behind it. Price of house is mentioned but not emphasized.



BOSTON BUILDER OPENS HIS NEW PROJECT WITH FANFARE AND HOLLYWOOD GLAMOR



Sumner D. Hersey

Crowds who attended the opening of Sumner Hersey's Oak Park Manor, not only saw Martha Raye break the cellophane to enter the first house, but saw figure skating champion Lillian Tribbey hanging on the street sign where the development's main streets meet. Government was represented by Labor Secretary Maurice J. Tobin, Area FHAdministrator George Cahill and Chief Valuator Walter Whalen. President Henry H. Pierce, of Boston's Merchants Co-operative Bank, represented the local financing agency. Such customer attractions as this come natural to Hersey who was publicity director of U.S.O. during the war.

MERCHANT BUILDER SURVEY

The 1949 American home will be smaller, less expensive, more available, and harder to finance. But buyers will get more for their money as U. S. builders shake the postwar kinks out of their operations. Results of a FORUM survey on housebuilding prospects for the current year

To find out how leading U. S. builders assessed their prospects for 1949, FORUM last month queried 250 leading house builders throughout the country. The soundings brought forth a variety of answers. Summarized in this survey, they indicate significant trends for the industry's future. Most generally agreed upon, by builders large and small, was the fact that the headiest phase of the postwar boom had come to an end. The shift from a seller's to a buyer's market had become a reality, although sales (especially of lower priced units) remained steady. But houses were no longer sold from plans; buyers were shopping around, expecting—and getting—more for their money.

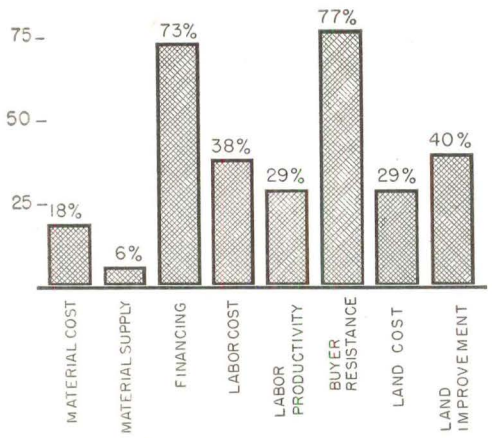
What had happened? The experts differed on details but agreed on the basic causes. Tighter credit has made it difficult for some, and impossible for others, to finance their purchases. Purchasing power was off. Houses still cost more than most families can afford.

Why? Builders cited the continued high level of construction and material costs; higher interest rates for mortgages; the high price of land and land improvements. Real estate taxes are going up, too. Labor is more efficient, but its cost per man hour is at a record high and shows few signs of coming down. Many, indeed, thought that labor cost was the chief factor in the slackening demand. Said one contractor, punning on the words of a popular song: "Clancy lowered the boom."

With almost everyone concurring in the general diagnosis, the industry is turning its attention to the future. For, whatever the causes, the passing of a seller's market has gone unlamented by the public and, to a surprising extent, by builders themselves. Granted a reasonable freedom from government interference, they can still turn out nearly as many units in 1949 as they did in 1948 (estimates run from 750,000 to 875,000 for this year, compared with about 925,000 last year). The competition will be keener, and many of the war-born operators will be squeezed out. But there was no indication that the market would dry up, or that it needed to be primed with public funds. To seasoned builders, a buyer's market meant a healthy market—a chance to regain the public's confidence.

Moreover, against the prevailing winds, builders thought they felt some hopeful breezes. Labor productivity is improving; the quality of materials and workmanship is better than at any time since the war, and many homes will include all major appliances in the purchase price; most significant of all is the fact that the industry is retooling to meet the vast, unsatisfied demand of the lower-income buyers. Although this means a smaller house than was erected in 1948, it also means that the buyer will be paying less for it. Comparatively speaking, he will be getting more for his money. Better floor plans, more site prefabrication, closer supervision, competitive buying of materials, and smaller profit margins are combining to produce a lower square foot cost.

But whether 1949 lives up to its promises depends on many factors largely outside the builder's control. On the following pages, FORUM gives the views of a cross-section of the industry on six important questions relating to these factors.



"This will be known as the year the water was squeezed out of house-building prices. The $30 a day mechanic, the subcontractor with his 40 per cent profit, the material dealer who charged what the market would bear, the promoter and black marketeer who sensed a quick profit, the high cost land developer, and the builder who used the old house market as a price base are all fading fast. With common sense rewards for everyone's efforts, the lender's security will be sound and the public will buy houses." Evert A. Carlson, Minneapolis, Minn.

"I own a comparatively small, unincorporated building business consisting of myself, my son-in-law, and, in part time capacity, my wife. Our main effort is to keep overhead down, and this is the way we do it. We have no downtown office, no full time stenographer, no bookkeeper, and no equipment other than a half-ton pickup truck and assorted small tools. Our subcontractors furnish all the rest. I do 75 per cent of the architectural drafting. We rely almost entirely on the friends or relatives of people who have purchased our homes to buy other houses we are building. Our last year's advertising bill for approximately one-half million dollars worth of property sold was less than $50.

This is our contribution to cost saving devices, and operating in this fashion we have successfully, over the past decade, competed with a dozen or more firms in our community in the same business." Russell Stapp, South Bend, Ind.

QUESTION: Do you anticipate trouble with any of the following in your 1949 building program?

	yes	no
Material costs	18%	82%
Material supplies	06	94
Financing	73	27
Labor costs	38	62
Land costs	29	71
Land improvements	40	60
Labor productivity	29	71

The above figures appear to indicate that the industry has passed the crisis. Actually, a closer reading reveals that builder's "troubles" have merely reached a state of equilibrium. Although most builders replying to FORUM's question foresee a downturn in material costs from 5 to 15 per cent, with a substantial easing of the supply problem, labor costs show little sign of following suit. And to offset the respite on the supply front, the credit picture has darkened. Money will be tight. Furthermore, hidden costs are being added to the finished product in the requirements of zoning regulations and building codes.

The trend, however, is spotty. A breakdown of answers shows financing to be much less of a problem in the East, where mortgage money is still fairly plentiful, than for the nation as a whole. Only 41 per cent of eastern builders expected trouble in getting credit for their buyers, as against a national average of 73 per cent and a West Coast figure of 80 per cent. In other respects, too, eastern contractors expected to fare better: only 8 per cent looked for material costs to go higher (compared with a high of 23 per cent in the South), and labor costs were thought to be less of a problem in the East than in the country as a whole.

In other fields, the Midwest presented a bright spot—labor productivity promised trouble to only 17 per cent of those queried, as against a high of 43 per cent for the West, where manpower was still being recruited from the non-construction industries. Land costs, too, were expected to offer little upturn in the Midwest—only 13 per cent of the builders looked for some increase, compared with a national average of 29 per cent and a regional high (West Coast) of 47 per cent.

The national variations were reflected in widely differing builder reactions. Los Angeles' Cletus H. J. Jollie declared: "Financing is simply too difficult for the speculative builder." Other developers broadened the fighting front to include high labor costs and the prospect of government competition in the low priced house field.

QUESTION: What is the trend in your locality, in the following items, as compared to 1948?

	up	down	no change
Material costs	7%	52%	41%
Interest rates	63	—	37
Labor costs	38	10	52
House prices	8	61	31
Land costs	27	9	64

Answers to this question enable the preceding figures to be interpreted cost-wise. Thus, while 82 per cent of all builders surveyed on Question 1 reported that they did not anticipate trouble on material costs, a more optimistic picture was revealed by a rephrasing of the question: 52 per cent of the same group believed that prices would come down. More than half of the cross section expected no change in labor costs, whereas over a third predicted a rise. Land costs appear to be the most stable. The most significant shifts are expected in interest rates (up) and house prices (down).

But in forecasting a lower priced house, builders were virtually in agreement that the 1949 product would also be smaller. Not all of the economies, however, will come out of living space. Most builders expect to trim costs by a variety of additional means—elimination of basements and garages, use of plaster board for inside walls; simpler design and more standardized floor plans; the production of more "stripped" or unfinished houses.

Yet even the development of a cheaper house will not mean substantially lower prices in some cities, since the cost reduction will be at least partially offset by a jump in land costs and interest rates. This appears to be especially true in the East, where 53 per cent of the builders predicted a rise in land prices. In the southern states, where 75 per cent of those queried expect to build lower priced homes, an even greater number — 83 per cent — expect money to be more costly. Many builders, in view of these cross currents, were asking themselves the question: How much quality and size can we cut out of the product without killing off the market? For if there was a ceiling on prices which the buyer was willing to pay, there was also a floor on the quality he would accept. And the floor, for many a shopper, would have to have a basement under it.

QUESTION: Do you find that buyer resistance is increasing?

yes	no
87%	13%

Not many contractors could blink the fact that the consumer was once more sovereign. But most of them tempered their answers by pointing out that stiffening resistance had not appreciably cut down sales, except on higher priced units. Buyers were becoming more choosy and critical, they were taking longer to make up their minds, and having increased difficulty getting mortgages. But if the price was right, they were still buying (as Long Island's Bill Levitt recently discovered, see p. 84). Should Congress approve a 30-year FHA loan policy, bringing monthly payments down to the level of lower income prospects, most builders thought that the present trend would be reversed. Until then, however, contractors—especially the larger operators—expect to work on a lower inventory of homes.

Few builders thought that the industry was headed for a slump, and many were downright optimistic. Summed up R. P. Gerholz, Flint, Mich., developer: "The automatic market is gone. However, a very large market still exists, but in place of early or immediate possession, we must offer something new—exciting—different. There are millions of families who can and will buy well-constructed, attractive houses."

"It is our belief that selling in the coming year will be more competitive and that people definitely are showing signs of resistance to higher prices. For this reason we are incorporating the following extras as standard equipment: an automatic washer, Venetian blinds, carefully planned landscaping, storm windows, and built-in electric heater in the bathroom. We feel that these extras will help to enable us to meet our sales objective and at the same time give the buyer outstanding value." Pearce & Pearce Co., Buffalo, N. Y.

QUESTION: (a) What is the current interest rate for loans made on the houses you are constructing?

Interest rates in per cent

4	4½	5	5½	6
7%	53%	36%	2%	2%

(b) How are you able to place these loans?

Premium	Par	Commission	Varies
21%	48%	21%	10%

(c) Do you think construction financing will be easier or harder to obtain this year than in 1948?

Easier	Harder	No change
11%	70%	19%

In this battery of questions, many builders thought they saw the key to the future. The trend was plain: mortgage money is fetching higher rates (4½ and 5 per cent, as compared with an almost universal 4 per cent a year or so ago); more and more loans are being placed at par, or at a commission—a shift from the immediate postwar "premium" period, when mortgage money was more plentiful; construction financing is downright tough. Lending institutions are leery of present valuations on new homes; Federal Reserve requirements are up, and banks have less cash to loan. Four per cent VA loans have virtually dried up. Should the credit squeeze intensify, it could well become a serious threat to the builder's prosperity.

Tighter credit is expected to be the most important factor behind continued consumer resistance. The rise in down payment requirements has already turned away a large segment of the lower income group upon which future sales are most dependent. In this connection, builders' comments indicate at least one urgently needed change in government lending policy: liberalized FHA requirements on low cost homes and extention of the life of loans for a longer period. Says W. L. Bridges, Indianapolis builder: "Long term loans at a low rate of interest gives the buyer a chance to see his way out." As a substitute for public housing, more than one developer recommended: Let Congress help the would-be home buyer by authorizing 40-year loans.

"What we need more than anything else is a longer amortization period, lower interest rates, and larger loans so that we can deliver a finer product and a more livable unit instead of an 'economy' house." Earl Popovich (Hansen Homes, Inc.), San Francisco, Calif.

"I personally cannot see how one segment of our economy can be expected to produce miracles. Economy houses will come when prices and labor supplies are more favorable. We are simply trying to crowd too much housing into too short a time. The result has been to further inflationary conditions and high costs—the very factors which make the Economy House impossible at this time." J. L. Schroeder, Omaha, Neb.

QUESTION: Do you think a livable house can be built to sell for $6,000?

yes	no
37%	63%

Ever since Housing Administrator Raymond Foley popped the $6,000 question early this year, U. S. merchant builders have been trying to work out the supply-labor-government combination that would give them a "yes" answer. When labor backed out last February, however, (Economy houses "would lead to too much jerry-building") Mr. Foley's dream house looked more like a dream than ever. FORUM's survey confirmed the bad news. Nearly two thirds of those queried did not think that a $6,000 house could be built at this time. Of the 37 per cent who did think so, many were in the South (63 per cent of all Southern builders surveyed thought an Economy House possible for their region). And nearly all who answered "yes" did so with their fingers crossed. Six thousand dollars was a rock-bottom minimum which would provide the essentials, but not the luxuries.

But if $6,000 was too low for most builders, a $6,500-$7,500 target seemed practical. Memphis developer Charles H. Freeburg expects to put up 100 units this year

(Continued on page 150)

"It is our opinion that no house to sell under $6,500 can be built profitably by any builder except by using either wholly prefabricating, or semi-prefabricating, methods. The reason is to be found in the savings in construction time. Our own conventionally built houses took an average of seven months to complete. Our semi-prefabs, by contrast, averaged 21 days in construction. This is a 576 sq. ft. unit which sells for $6,570, financed on a 30-year loan at 4½ per cent interest." Bob Byers & Son, Columbus, Ohio.

1. BUILT-IN SALESMANSHIP and canny construction gear this 2,000 unit development for a bearish market. Thoughtful design lowers the height of the house and the price tag

LOCATION: Los Angeles, Calif.

BUILDER: Kaiser Homes

ARCHITECTS: Wurdeman & Beckett

If the bear comes over the mountain, Kaiser Homes' sales force in its Panorama City development is ready to bat it over the head with a big, fat club. Fritz Burns, President of the Kaiser housing subsidiary, is not only a builder of no mean ability—but also a super-salesman.

Everything about the new project breathes of salesmanship. Basic selling tools are the houses themselves; an example of each model is on display daily from 9 a. m. to 9 p. m. and is shown exactly "as delivered." Because Panorama City covers 400 acres, there are several groups of model homes open for inspection. In each group is one house completely furnished by a good decorator and one or two roofed-over skeleton houses in which prospective owners may see exactly the materials and methods that go into the construction of a Kaiser Home (p. 114).

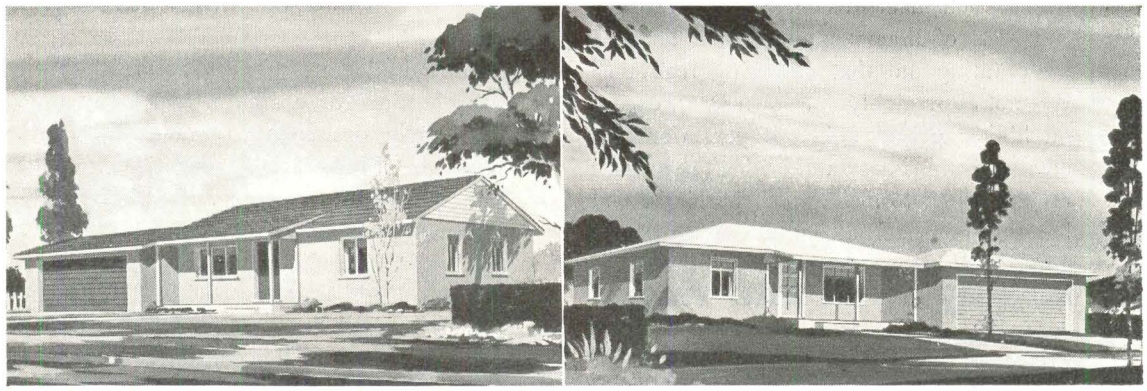
Considering all that they include in the way of self-selling details (p. 121), the price tags on these houses are also sales features in themselves: $9,250 for the two-bedroom model, $10,150 for the larger house with its extra bedroom and dining room.

City in a City.

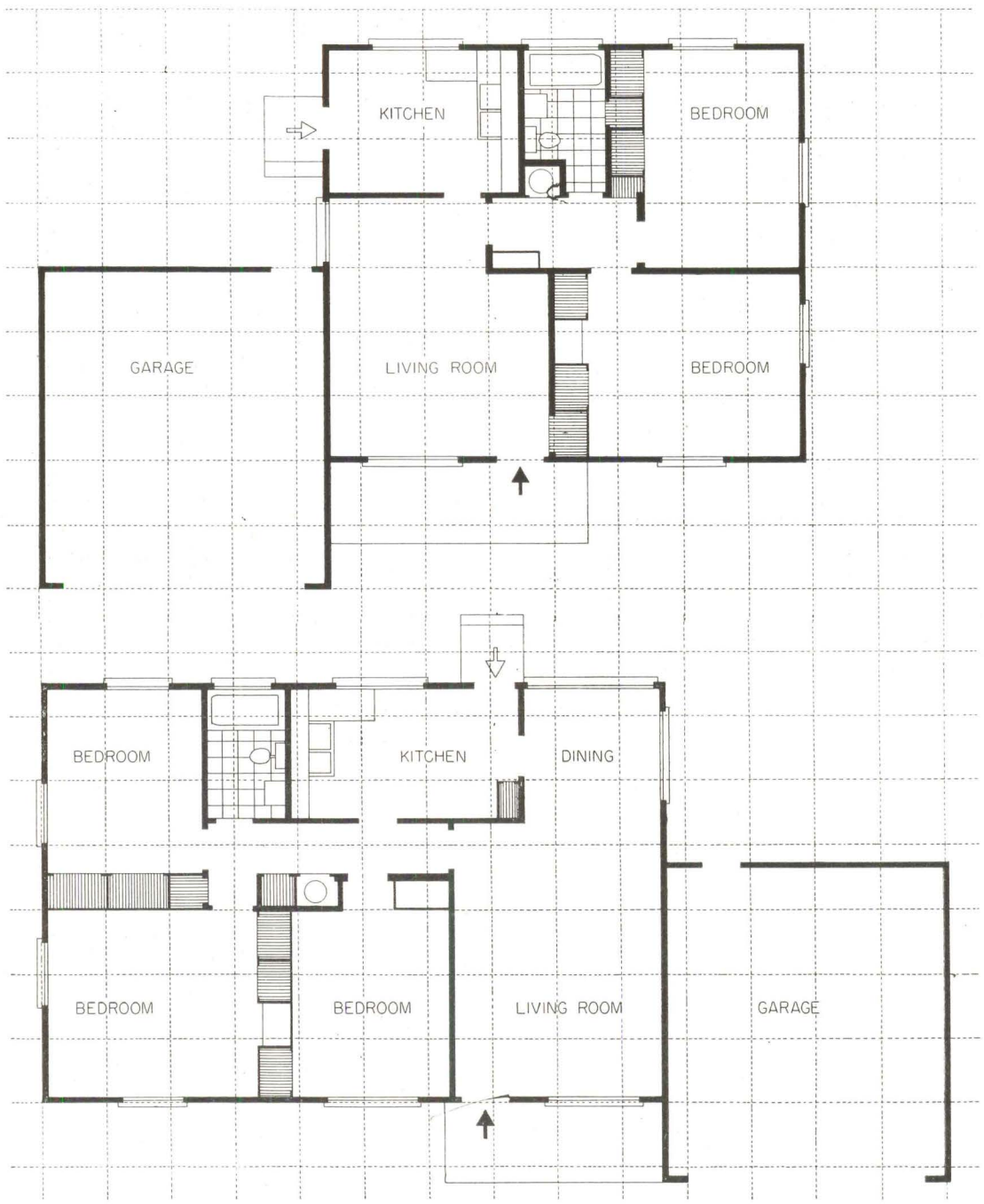
Panorama City is located within Los Angeles city limits, in the fabulous San Fernando valley 13 miles north of Hollywood. When complete it will truly be a city within a city, for besides 2,000 two- and three-bedroom units, there will be 25 miles of paved streets with curbs and sidewalks, two shopping centers, large parking areas, churches and a school.

The principal shopping center covers 16 acres and is supplemented by a 25-acre parking area. It will extend along both sides of the boulevard on the west side of the project (airview, right). A smaller shopping center, also supplemented by parking space, will be built on the east side of the project, nearly a mile away. Most commercial and residential areas will be separated by duplex units; elsewhere planting strips will be used as buffers. Property along the southmost edge of the tract is earmarked for multi-family structures, churches and a parochial school.

From the time Burns built his $75,000 show house on Wilshire Blvd. with the help of Architects Wurdeman & Becket (FORUM,

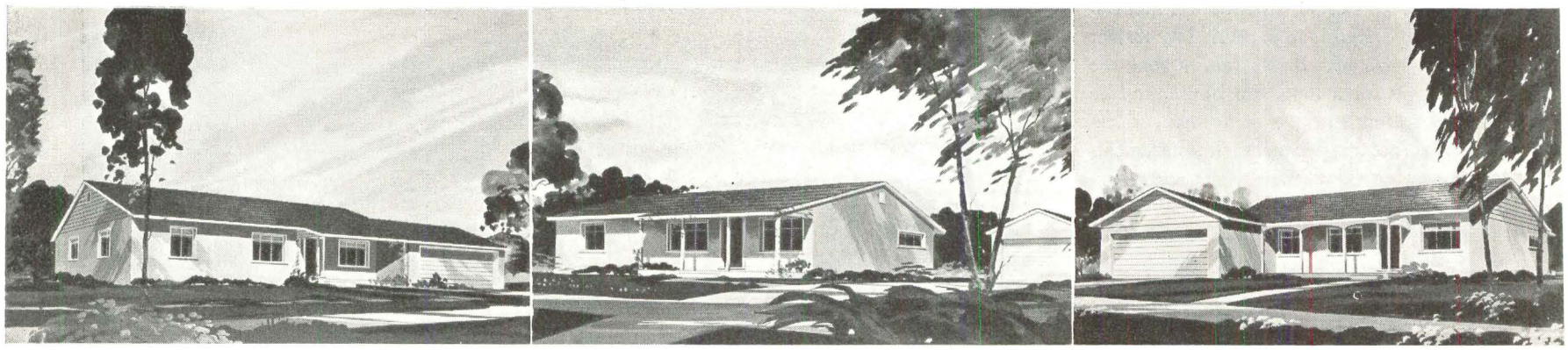


DIFFERENT DESIGNS, BASED ON A SINGLE PLAN, ARE ACHIEVED BY VARYING THE GARAGE

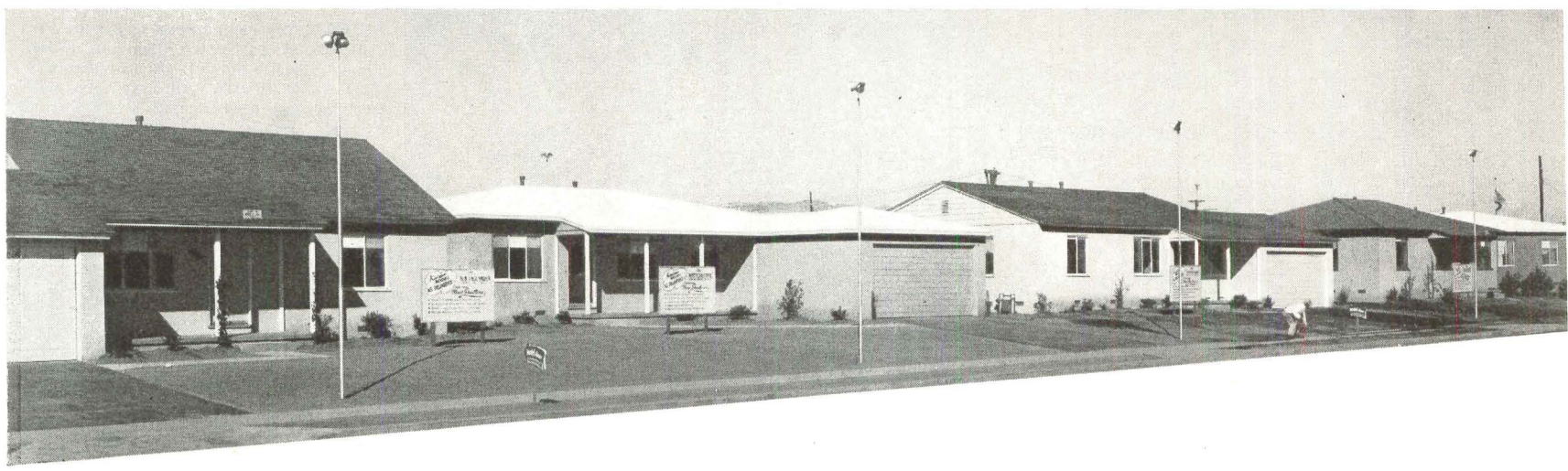


4' grid scale 3/32" = 1'-0"

COMPACTLY PLANNED with rooms of generous size, the two-bedroom chassis contains 800 sq. ft. and the three-bedroom unit, 1,025 sq. ft., exclusive of garage and porch. Because of their sprawling plans, these houses require lots of 60 ft. width. (Depth is 100 ft.) Burns' interesting site plan, with its curved streets and staggered building lines, is suggested in the air view (opposite) and detailed on page 103.



LOCATION, PORCH TREATMENT, ROOF LINES, AND EXTERIOR FINISH AND BY REVERSING THE PLAN. BELOW, A BATTERY OF DISPLAY MODELS





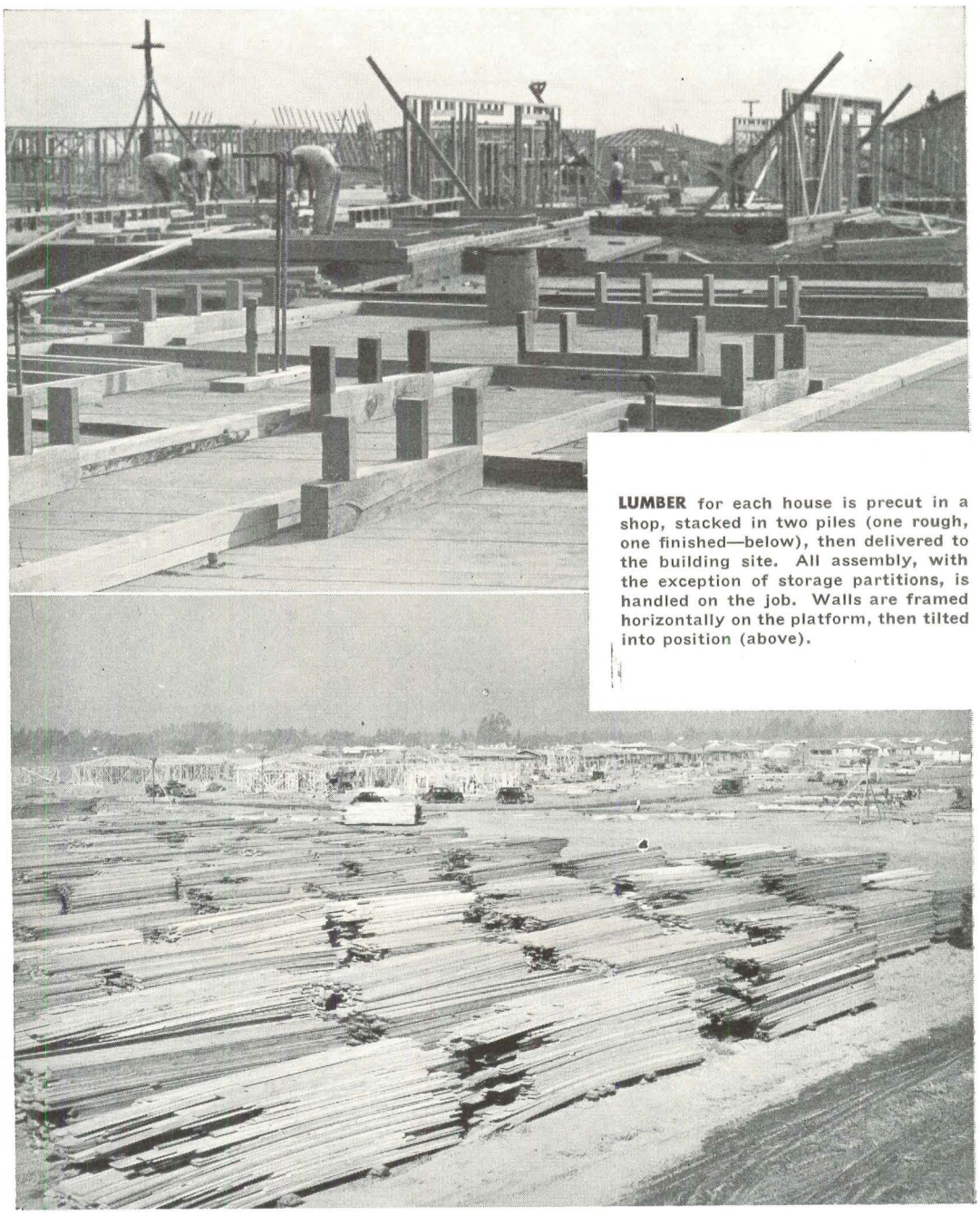
Mar. '46), he has continually improved the design and quality of his small houses. Wurdeman & Becket still help him, but most of the design load is carried by Kaiser Homes' own staff. Burns knows that the public longs for a long, low house, and he spends hard cash to give it to them. Excavations a foot deep beneath his basementless houses combined with beam and plank floors (see pictures, below) have lowered the house about 2 ft. below the level of most other California builders. It has been depressed still further by lowering the low-pitched roof to a point where the ridge pole is at the normal ceiling height and the eave is only a whisker above the head of the normal window. In this operation the horizontal ceiling was replaced (at considerable cost reduction) by the sloping roof frame which, when finished in dark stain, gives the appearance of a beamed ceiling.

But he is still not satisfied with the height of his house. Now under consideration is a slab foundation, but the local FHA office requires steel reinforcement of slabs at an added cost of about $65 per house. If Burns wins his argument with FHA, his house will go down another 10 in.

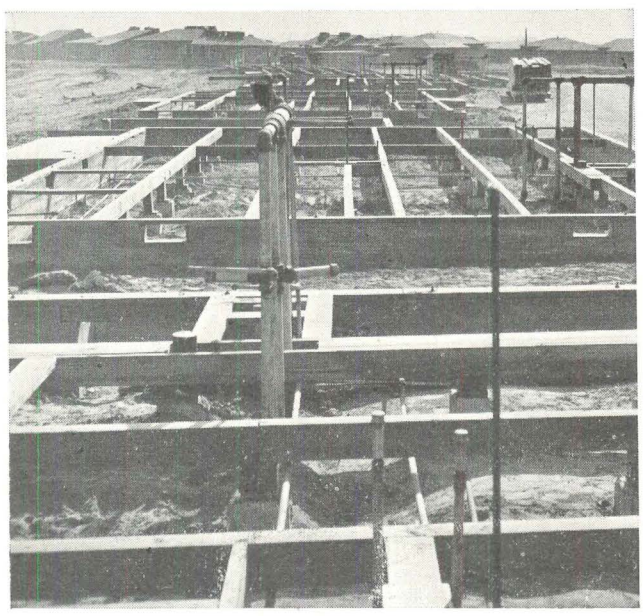
Although not too many of his customers drive two cars, all of Burns' houses have double garages. This represents no miscalculation of the market. On the contrary, the double garage serves several purposes besides accommodating two cars: It adds to the house's sleek lines, takes the place of basement storage space and is readily converted into an extra room. To hide the sight of stored household effects, now frequently exposed by yawning overhead doors, Burns plans to replace them with two sliding doors, one of which will usually remain closed.

Back to site work.

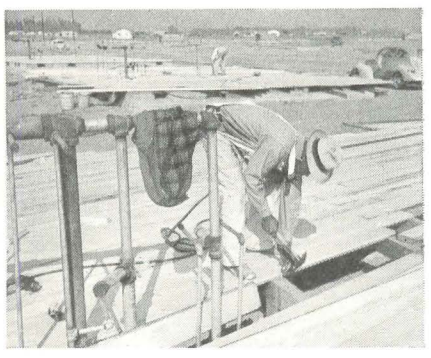
Construction of Burns' new houses differs from their prototypes (FORUM, Mar. '47), even more markedly than their design. Immediately after the war, when Burns teamed up with Shipbuilder Kaiser, the company climbed on the shop fabrication bandwagon for the very good reason that the government granted higher material priorities to prefabricators than to conventional builders. But, with the end of the emergency and priorities, this fling at prefabrication ceased to pay off. While Burns was fabricating 3,000 houses at top speed in his shops, he was also hand-making 300 others on the site. And, the latter cost him less. There was too much expensive material handling in the shops. Today, Burns'

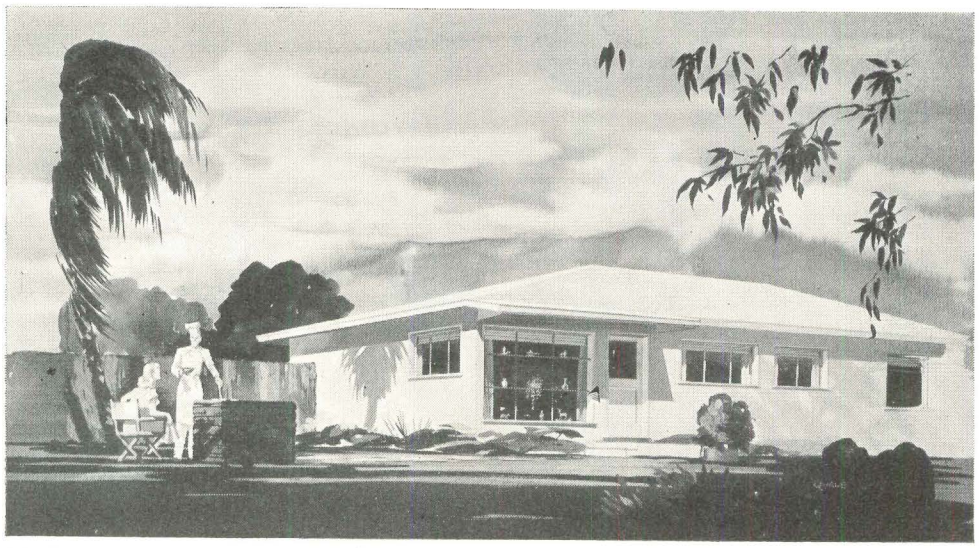


LUMBER for each house is precut in a shop, stacked in two piles (one rough, one finished—below), then delivered to the building site. All assembly, with the exception of storage partitions, is handled on the job. Walls are framed horizontally on the platform, then tilted into position (above).

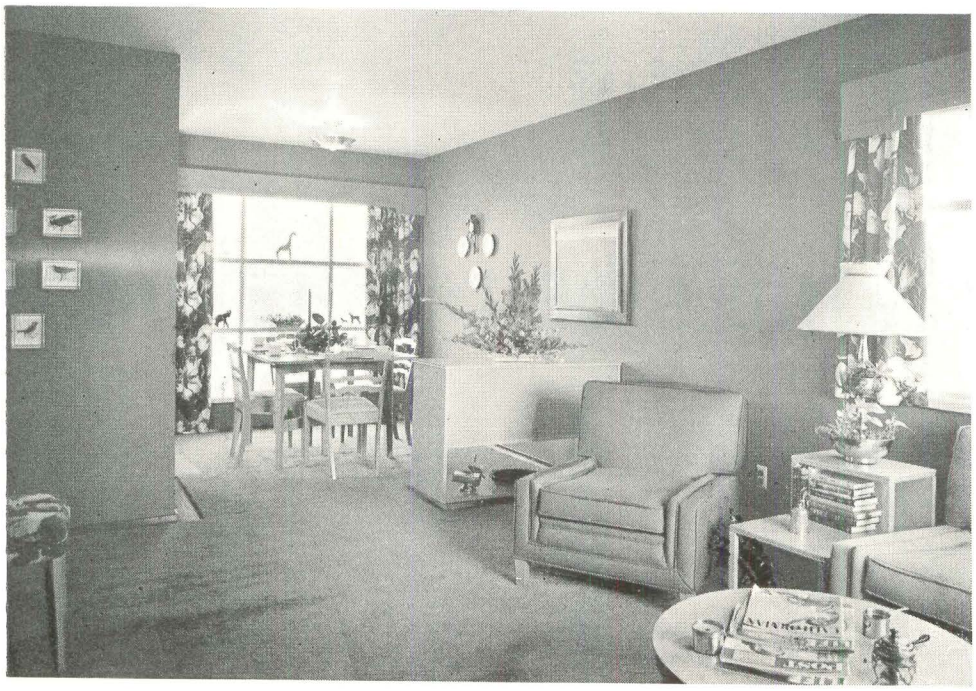


FLOOR BEAMS set flush with foundation top replace usual joist construction and bring house closer to grade to enhance its long, low appearance. Sub-floor of 2 in. tongue and groove planking is covered with oak finish. Burns details only one man to floor laying. "He doesn't waste so much time talking when he has no one to talk to." Plumbing tree is shop assembled.





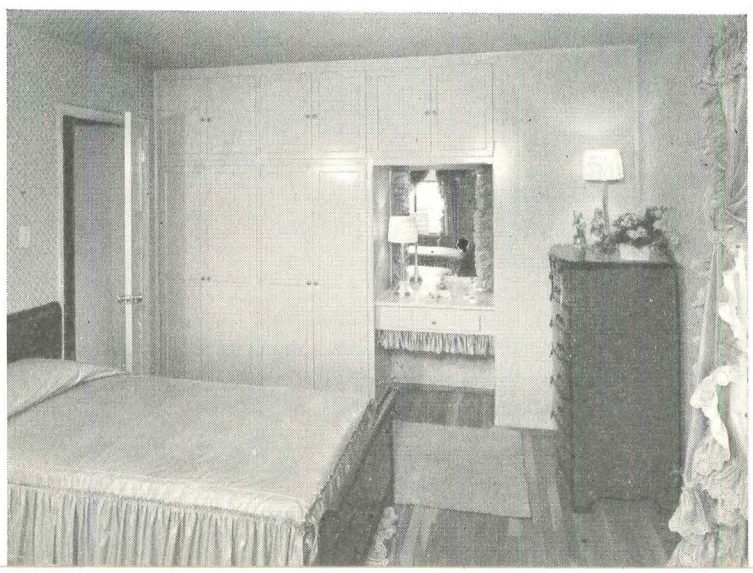
FENESTRATION is carefully studied and makes good sense. Big picture window in dining space overlooks rear yard, is flanked by rear door. Smaller windows located high in kitchen and bath, sometimes in the dining space, provide light and view, assures privacy.



AIDS TO SALES:

- Model houses in groups floodlighted at night—some incomplete to show construction and materials (see p. 114), some unfurnished, some completely decorated and landscaped.
- Good design and attractive appearance through emphasis on long, low lines achieved by excavating 1 ft. beneath the house, by beam and plank flooring and by low-pitched, over-hanging roofs and, in the latest models, absence of horizontal ceilings.
- Variation of design—almost limitless modifications on two basic plans (p. 118 and 119).
- Varied sizes—two- and three-bedroom houses.
- Two-car garages which may be used for storage space or for conversion into an extra room. (Outline of this extra room is painted on the garage floor in the model houses and the future doorway is already framed.)
- Low prices: $9,250 and $10,150-$10,950 for two- and three-bedroom houses, respectively.
- Convenient shopping centers separated from one-family residences by a buffer of two-family "duplexes."
- Sales limited to those who can afford a $500 cash down payment and, therefore, can probably also afford to maintain and improve their properties.
- Bedrooms big enough to accommodate twin beds.
- Sliding doors wherever their normal position is open.
- Space-saving storage partitions with built-in vanities (below).
- Recessed kitchen cabinets.
- Flexible shower-bath faucet (below).
- Plastic bathroom counter.
- Plastered interiors.
- Picture windows (left).
- Reflective roofs of white gravel for purposes of insulation, beauty and cost reduction.
- Free assistance in further landscaping.
- Endless promotion and publicity of circus-like, but high caliber.
- Forty salesmen.
- Last, but not least, Builder Burns and wife live in one of the houses.

"QUEEN MARY" GADGET in corner of bathroom (right) is flexible pipe which doubles as shower head and tub faucet, eliminates one set of valves. Deeper-than-normal medicine cabinet is recessed in thick bathroom-kitchen partition. (On other side, kitchen cabinets, also recessed, project only 4 in. over the sink instead of the usual 13 in.) Bathroom also features Pullman-type lavatory with plastic counter, plastic wall tile around tub, high windows for privacy. Storage partition in master bedroom (below) was preassembled in a shop, includes built-in vanity table with mirror. Overhead cabinets provide handy storage space for little-used effects.



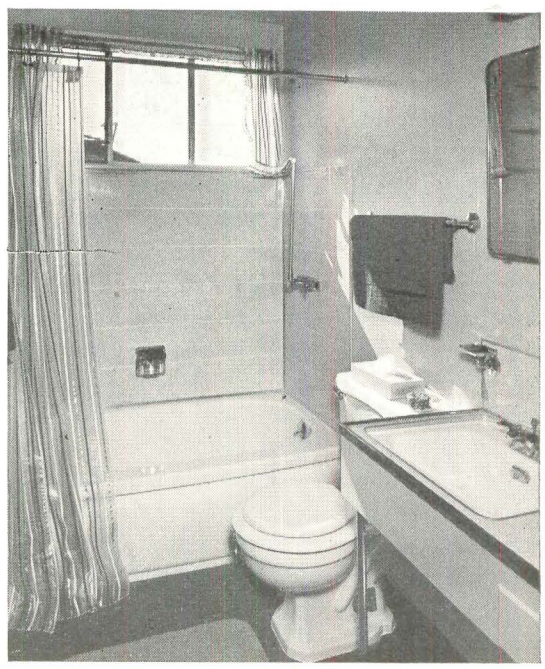


Photo credits: R. C. Quale, Associates; Loomis Studios; L. O. Worley; Fred R. Dapprich; Dean Vannice Photography and Read & Co.

PROJECT NO. 1 cont'd

prefabrication operations are more like Levitts (p. 84), include only the plumbing tree and storage partitions and the precutting of framing members. All other work is done on the job. Moreover, Burns has gone back to lath and plaster from dry wall construction. He says that it looks better and that it costs him no more.

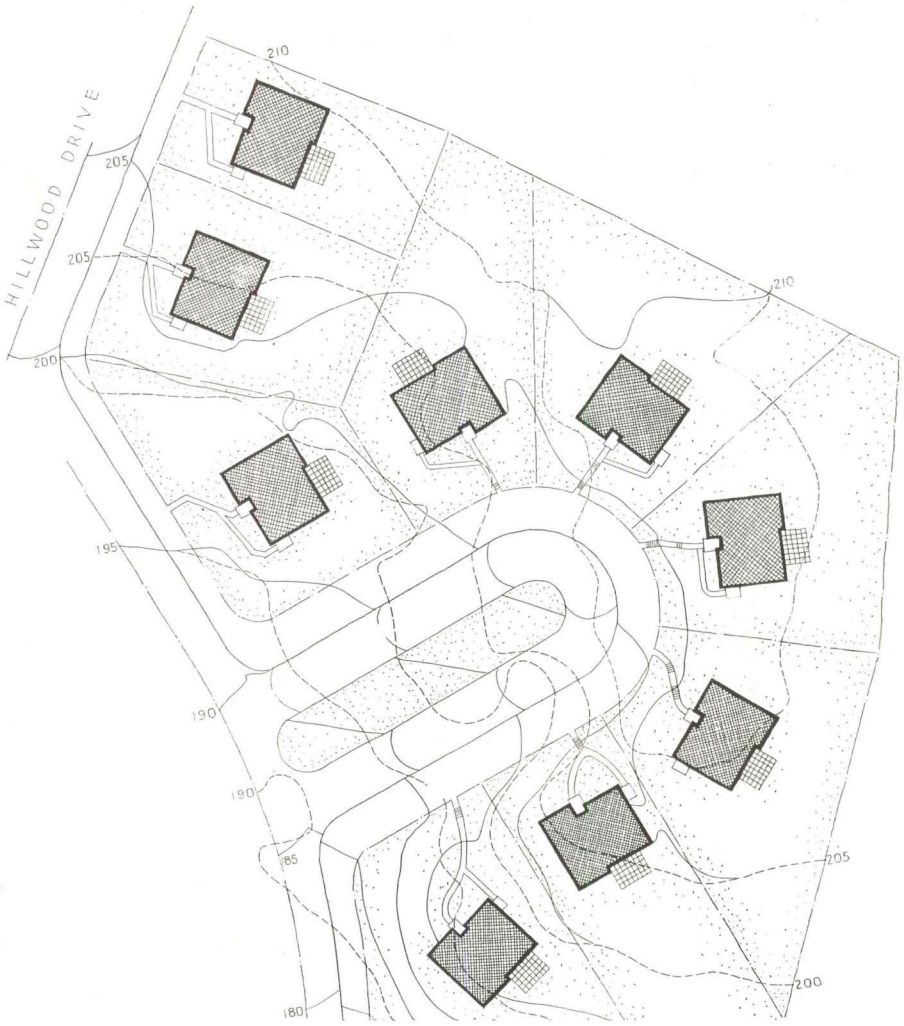
Another difference in the operation today from that of 1946 is that Kaiser Homes now use many more subcontractors. This is because the supply of building materials has eased and there is less danger of bottlenecks resulting from subcontractors' inability to get materials. Now, small operators are used by dividing the project into sections so that not all subcontracting of any particular phase is necessarily handled by one firm. Nevertheless, Burns still handles all land preparation, engineering and carpentry work with his 2,000 regular employees. He also maintains sufficient organization and equipment to override any catastrophy to a subcontractor and to keep work flowing smoothly.

Unlike some other big builders, Burns is not for wiping out the material dealer. True, he buys his lumber directly from a mill, in which he holds half interest, and maintains an inventory of some of the smaller items which go into his houses (his electrical inventory alone runs to 400 items). But, he believes that the dealer plays an important part, not only in his own operation, but more particularly in the operations of the much more numerous smaller builders. He does, however, harbor one grudge against the present distribution system—the fact that he must pay the same mark-ups as the smaller builders on which the present distribution system is based. He estimates that some mark-ups total as much as 270 per cent between manufacturer and builder and believes that they should be reduced for the big builder who has little use for the dealer's services.

The Pitch.

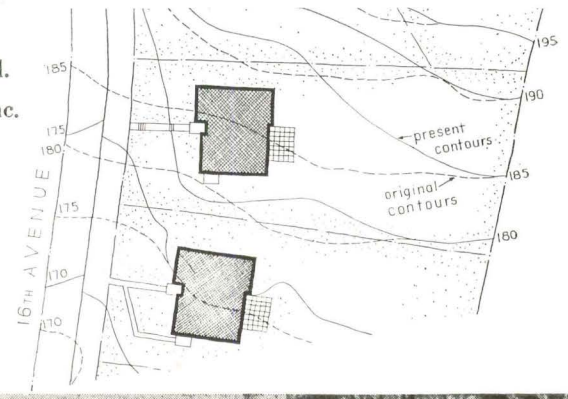
Fritz Burns has learned much, forgotten nothing, in his long sales experience. His 40-man sales crew is so well trained that even the occasional visitor who fails to sign a prospect card is nearly always followed-up because someone has jotted down his license number. Since KH has learned that purchasers become impatient if they must wait long before moving in, sales are not made until plastering begins.

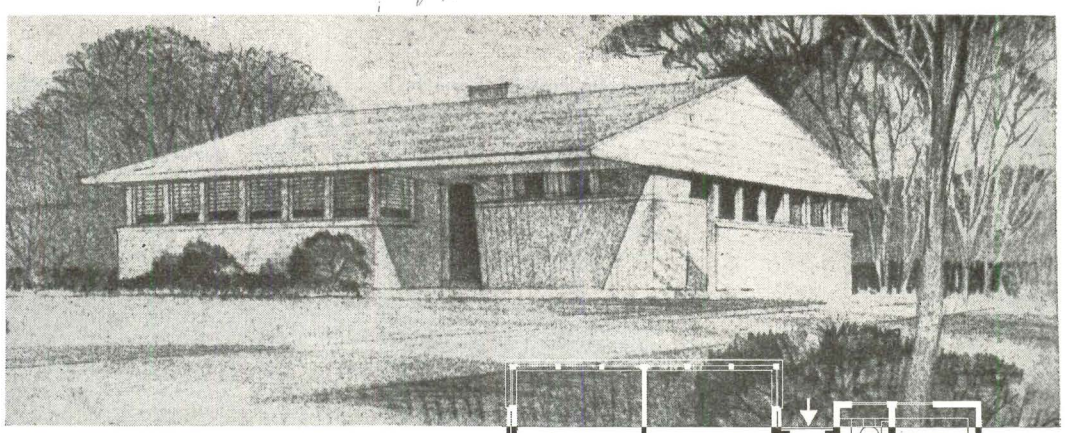
Result of all this salesmanship is that 3,000 to 5,000 persons visit Panorama City each week. On one recent week-end, Burns outdid himself, and Los Angeles police had to be called in to hold back the crowds pressing to see the model homes.

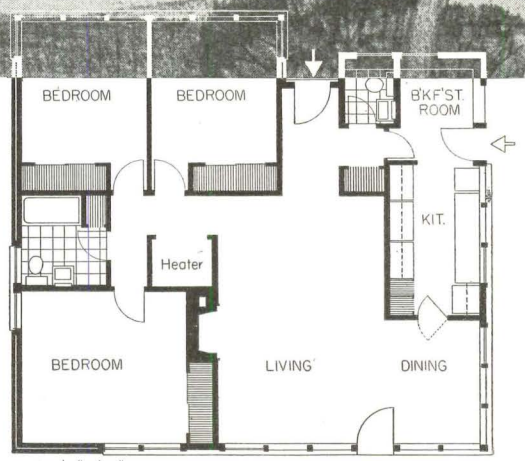


2. HILLSIDE DEVELOPMENT

LOCATION: Takoma Park, Md.
BUILDER: Carl M. Freeman Inc.
ARCHITECTS: Berla & Abel







scale: 1/16" = 1'-0"

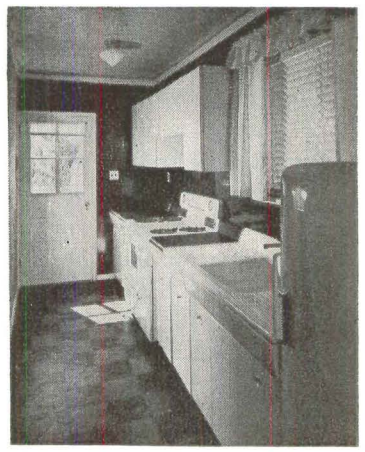
THIS YEAR'S HOUSE is longer, lower and less boxy than the one built in 1948. Ribbon windows are more in keeping with the cottage shape than window wall (opposite page). The expansion attic, sales point of 1948 houses, has been eliminated in favor of more downstairs bedrooms. Architects: Sweeley, Heap & Ganger.



Richard Garrison



STREET FACADE is quietly conventional, will not frighten the most timid customer.



KITCHEN is long and narrow with cooking equipment lined up against the outer wall.

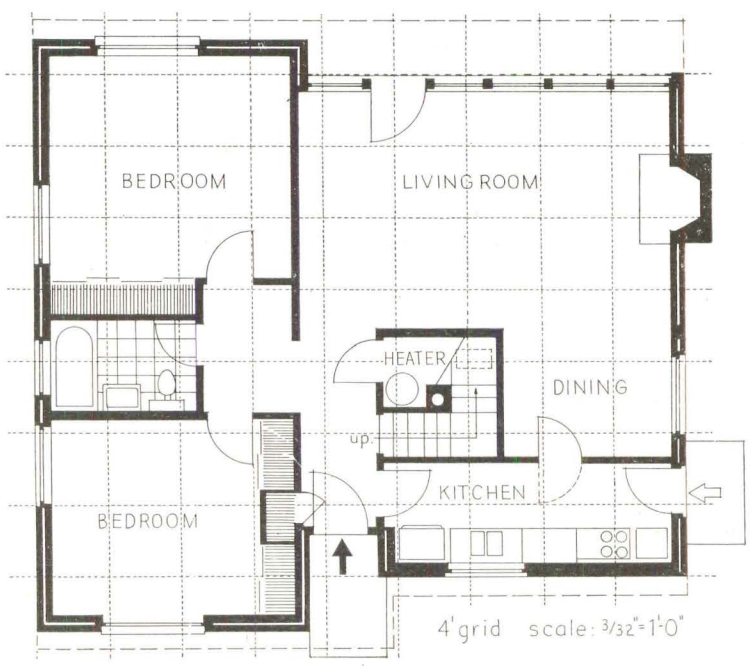
benefits from studied site planning and clean-cut architecture

This two-bedroom house, one of 57 similar homes in a suburban Washington development, represents a builder's shift from stock plans to an architect's design. The large living room window at rear with glass door opening toward the backyard is the major hallmark of change. But despite this innovation, the house is only a small step away from the typical speculative Cape Cod. Developer Carl Freeman explains that he did not want anything "radical" since "buyers resist a home that looks strange from the outside, although they accept almost anything inside." Interior features of which builder Freeman is particularly proud are radiant floor heating with separate control for living room and each bedroom; open planning of the living-dining area; walls of closets equipped with adjustable rods and shelving in the bedrooms; a brick wall at the fireplace side of the living room.

Because he was offering a fairly high-priced ($13,750) house with only two bedrooms, Freeman encountered buyer resistance. When the project was half completed, therefore, he changed the roof pitch to provide an expansion attic convertible into two extra bedrooms. All these houses sold before completed.

Encouraged by his 1948 success, Freeman has already started a new project of three-bedroom homes designed in a less conventional manner (see rendering, left).





3. TWO-STORY HOUSES, designed to avoid conventional box appearance, pack 30 per cent more living area than bungalows of comparable price

LOCATION: Waldwick, N. J.

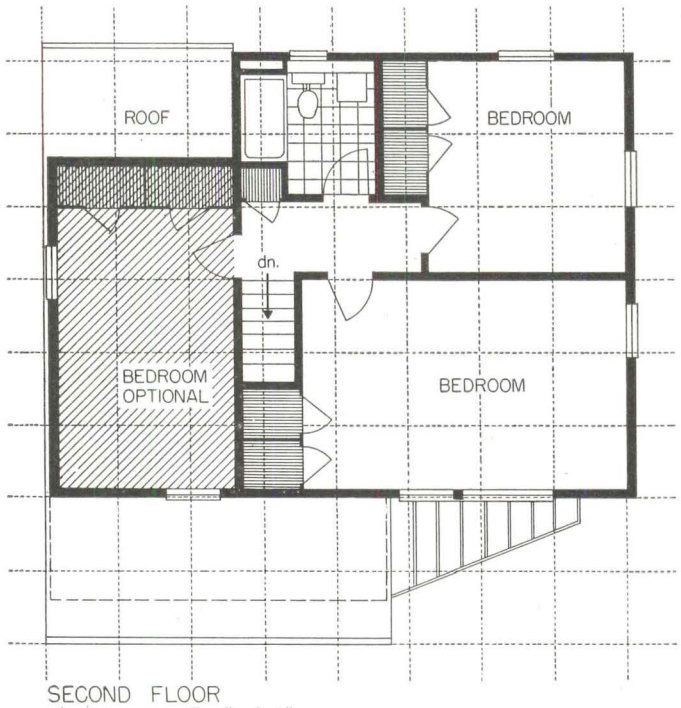
BUILDER: Zamore Builds, Inc.

ARCHITECTS: Petroff & Clarkson

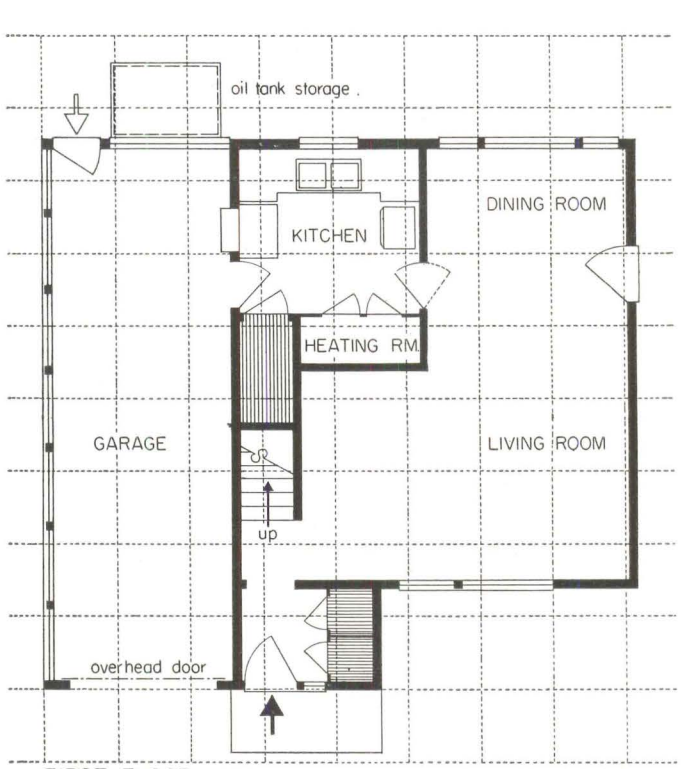
This variable design for a 180-house commuters' development in Waldwick, N. J. had the good offices of a knowing firm of architects. In their design Petroff & Clarkson showed they knew how far they could go in simplifying a speculatively built house for two ends, economy and good design.

The basic houses are two variations of a scheme which can be built with two bedrooms or three. Both are two-story houses erected on insulated slabs. All houses have full second stories, with clean roof slopes above, and a minimum of cut head room. In standing against the current ranch housing tendency of merchant builders to keep all rooms on the ground, Builder Zamore and his architects were following a firm set of convictions. "We've found," Serge Petroff explains, "that you can get almost 30 per cent more floor area per cube for the same money if you go to two stories, than if you stay on the ground. And in this size house, a floor is still a good plan separation between bedrooms and living area. The truth of that is indicated by the number of people who say they like to go upstairs to bed. With a two-story house there's less land coverage on the plot, and more yard available for gardening or the children. It may be more difficult to design a two-story house that's acceptable in appearance in the current market, but we thought the saving in money was worth the try. So we went to two stories and tried to keep them both clean."

Evidence so far is that Zamore and his architects have been highly successful. Thirty of the houses have been put up and sold, and the first block of the main development is scheduled for spring. Price for the three bedroom model was $12,600 last year, will be $12,770 this year. The two bedroom house sold at $9,900 last year, is up to $10,770 this spring. Floor areas are 1,280 and 1,100 sq. ft., respectively, excluding the 297 sq. ft. garages. Variations in plan, including flipovers, are used together with several different exterior treatments to attain 40 physical variations plus changes in exterior and interior colors and finishes. Exteriors are combinations of handsome cypress vertical siding, pine horizontal siding and cedar shingles.



SECOND FLOOR
4' grid scale 3/32" = 1'-0"



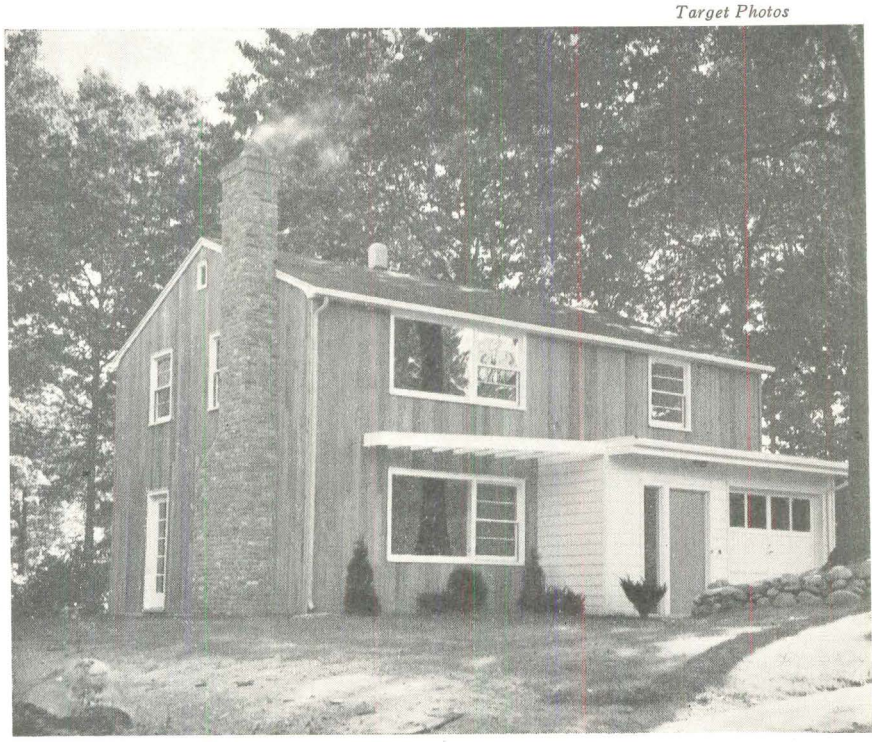
FIRST FLOOR
4' grid scale 3/32" = 1'-0"



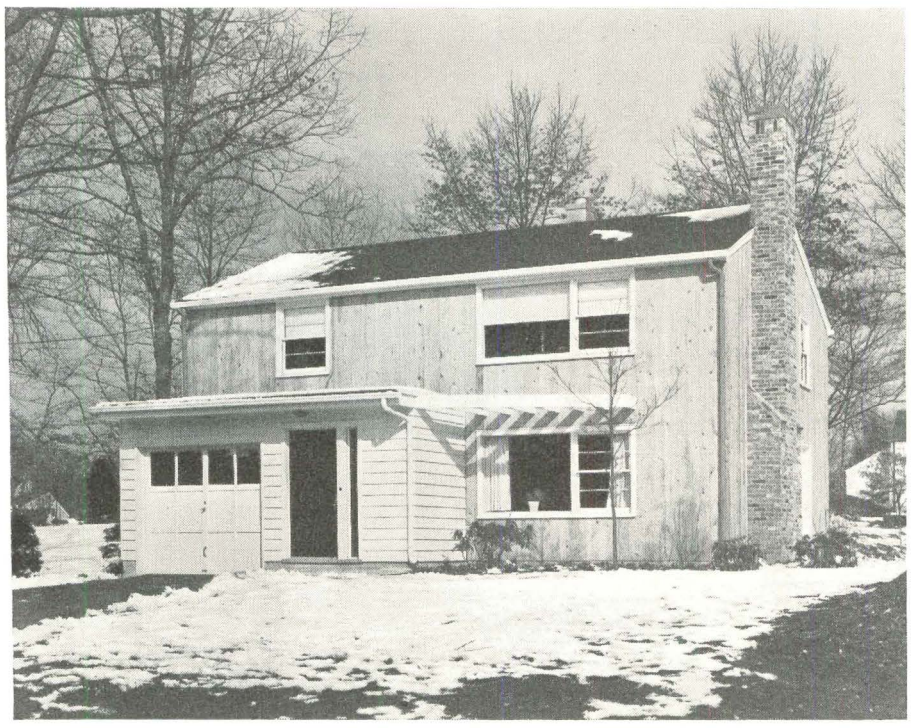


CARPORT-ENTRY PROJECTION TAKES CURSE OFF TRADITIONAL BOX

Target Photos



FIXED GLASS AND MOVABLE SASH ARE COMBINED IN BIG WINDOWS

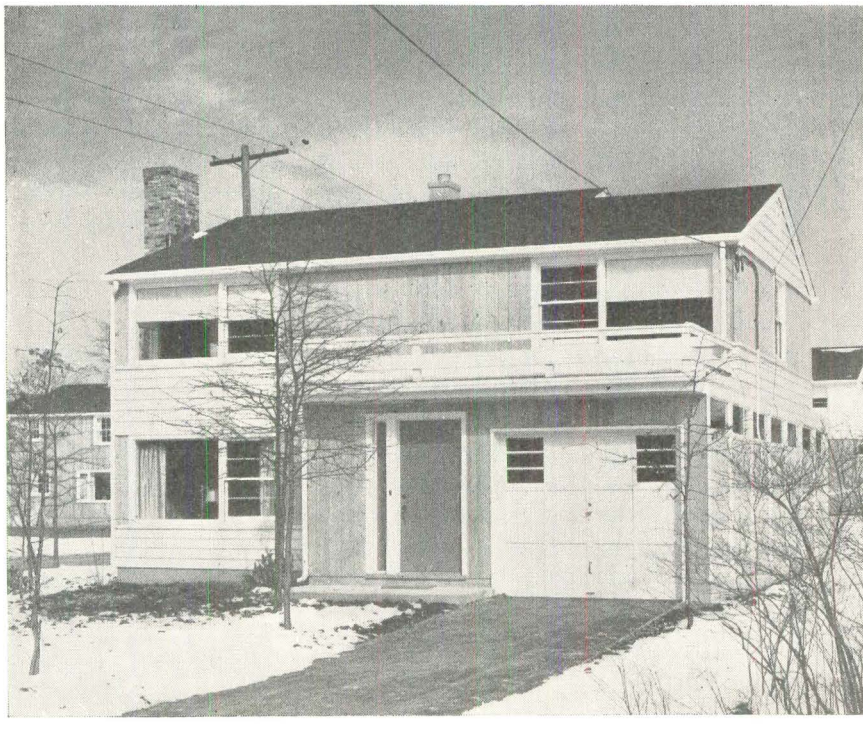


NATURAL SIDING CONTRASTS WITH WHITE TRIM AND CLAPBOARDS



A SLOPING SITE helps builder Zamore relieve the monotony of standardized two- and three-bedroom houses.

SECOND FLOOR TERRACE PROVIDES ANOTHER DESIGN VARIATION



4. ONE CONVERTIBLE PLAN, the basic design for a 100-unit subdivision, allows the customer to change a standard house to fit his own family requirements of size and use

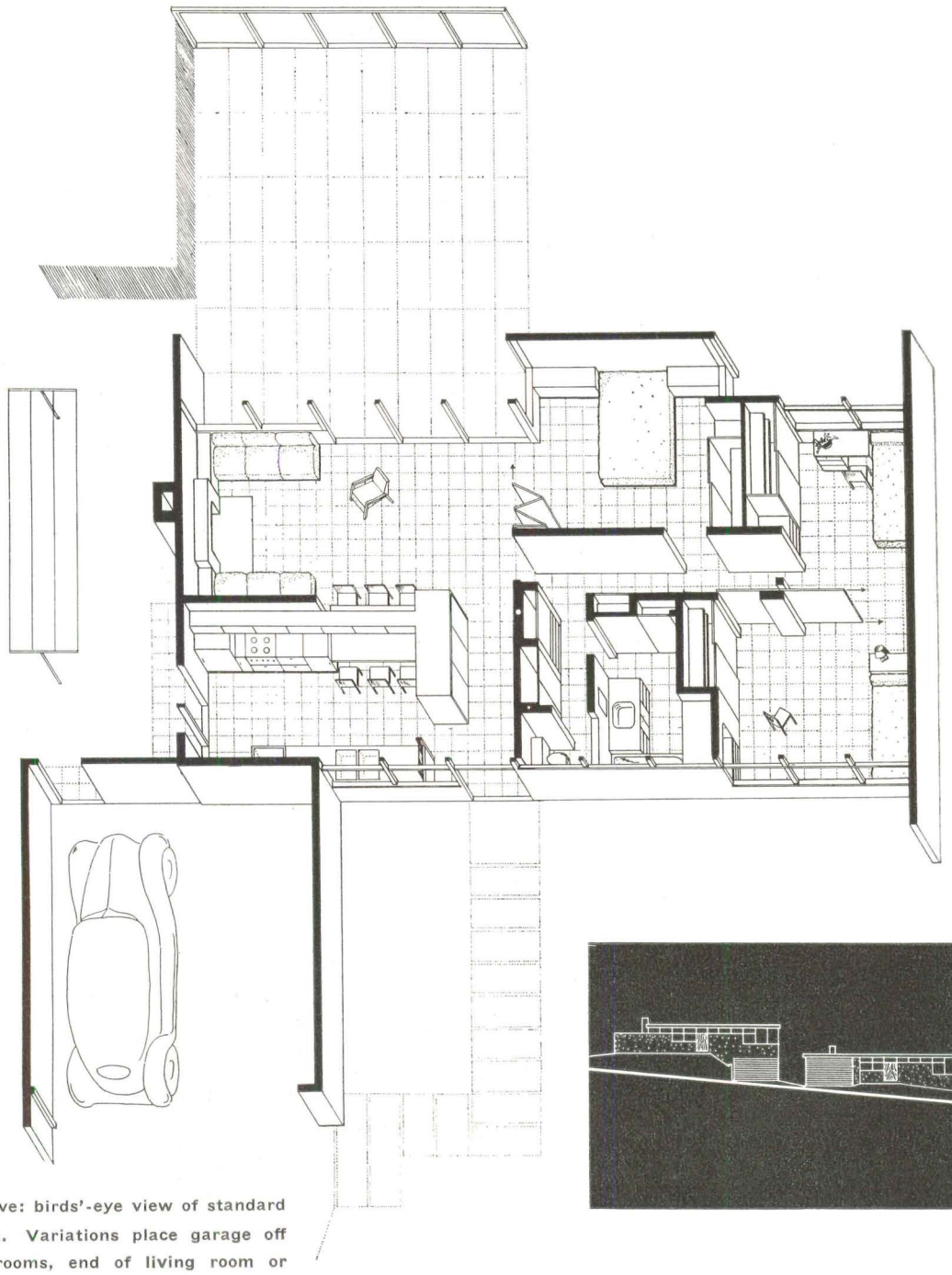
LOCATION: Los Angeles, Calif.
BUILDER: Advance Development Co.
ARCHITECT: Gregory Ain
COLLABORATING ARCHITECTS:
Joseph Johnson and Alfred Day

Almost unique among subdivisions in its excellence of house plan, siting and landscaping, is this 100-unit development in the Mar Vista district of Los Angeles. That it exists at all is a tribute to the initiative and farsightedness of a West Coast builder who expanded the profit motif to include the customer. What the home buyer gains in flexible living quarters, indoor-outdoor planning, built-in storage, scientific lighting and radiant heating, insures the financial success of the project from the builder's point of view. B. M. Edelman, President of the company which put up these houses, was wise enough to see the advantage of planning for his customers' benefit, modest enough to entrust the execution of his venture to a topnotch architect and landscapist.

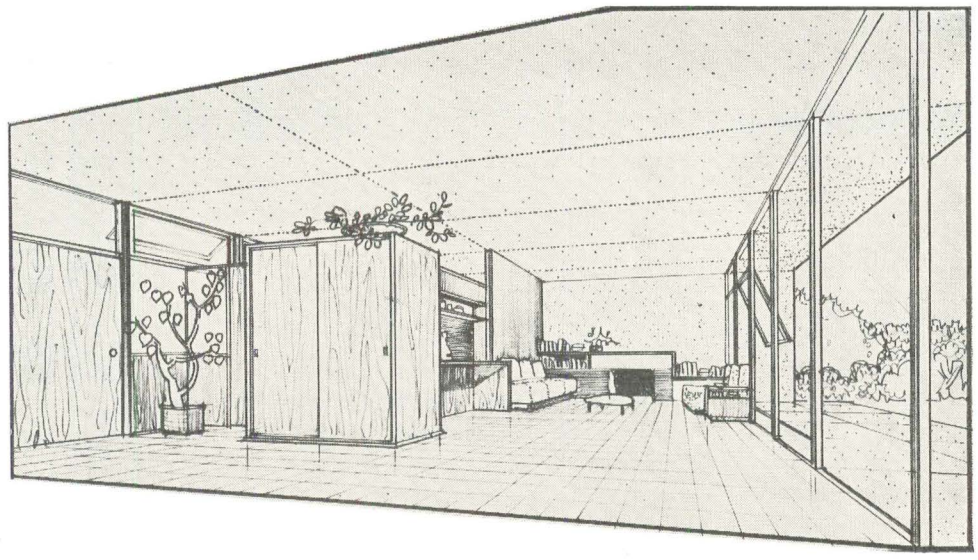
To profit both customer and builder within the modest limit of $12,500, the standard plan was a necessity. With repetition, it was possible to offer a three-bedroom house containing a floor area of 1,050 sq. ft. on landscaped lots 104 ft. deep and 65½ ft. to 79 ft. wide; a two-car garage; paved terrace; sliding window-walls; divided bath; built-in furniture.

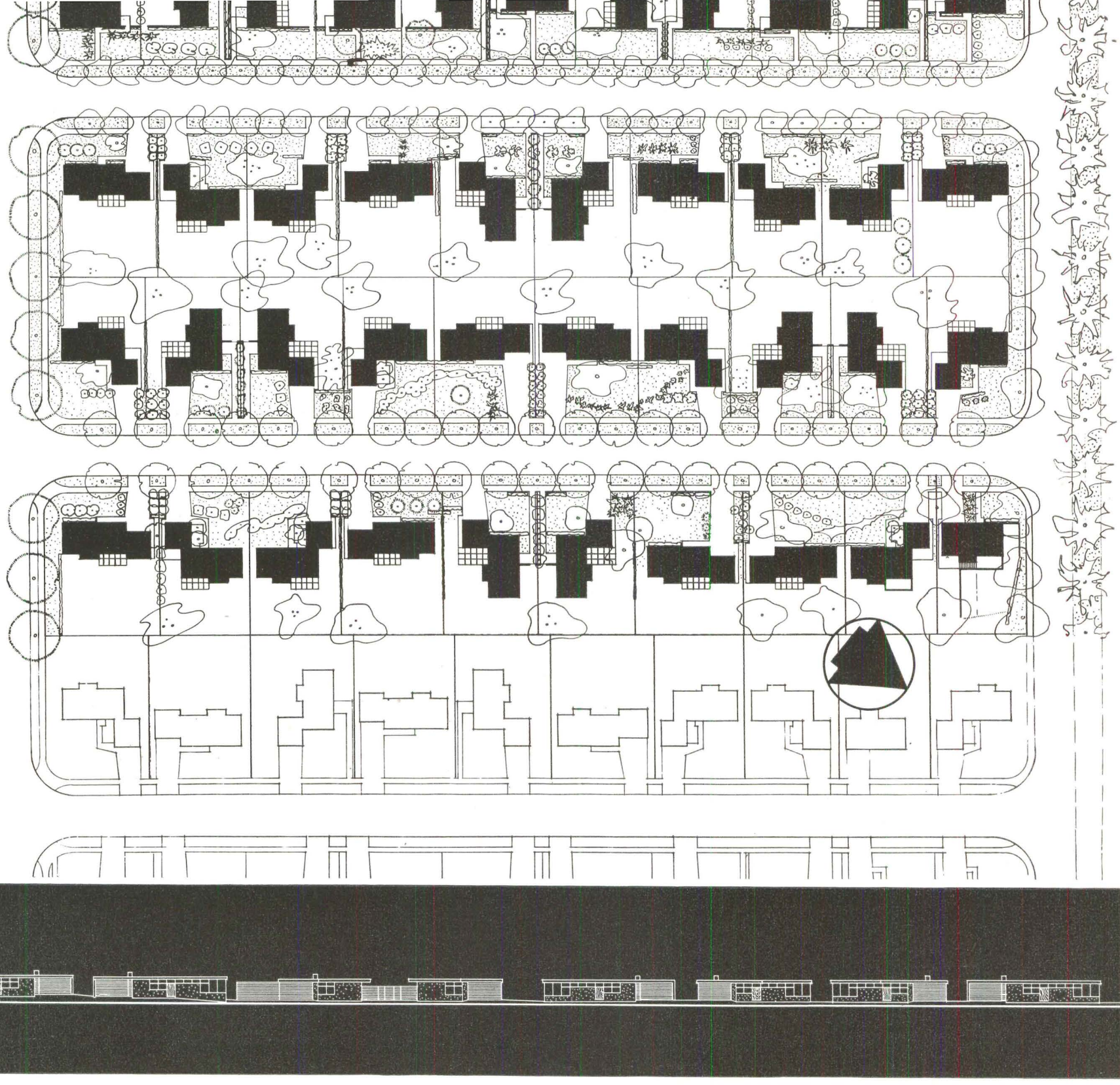
However, despite standardization, monotony was not in the Edelman scheme of things. Sixteen changes are rung on the basic design by reversal of plan, differences in siting and shifts in the placement of garage: some attached to the house, some separated from it and some under the house. Because the unit is not the usual box-shape, alike on both sides, these devices actually work, providing homes which look quite different from their neighbors.

In planning the house, architect and builder sensibly realized that the "average" family which constituted their market, does not exist as such. All families are different and therefore the plan was made extremely flexible to allow the customer, within limits, to design his own home. For instance, the sleeping areas are all convertible. Two small adjacent bedrooms can be thrown together into one large room by means of a sliding wall panel. In a childless family this might be desirable to provide a really spacious master bedroom. Where children are involved, the two rooms could double as a common playroom during the day. In the



Above: birds'-eye view of standard plan. Variations place garage off bedrooms, end of living room or kitchen. Below: sketch of living room and adjoining terrace.





Variations on the basic house were fitted to the site and to each other like an intricate puzzle to avoid the usual subdivision monotony.

Don Mohr Studio



same way, the large bedroom or study can become a part of the living room if the family is not large enough to need it for sleeping, or it can be thrown open on special occasions to give added space when desired. The kitchen-living room separation is also flexible. A built-in dining table serves as the lower half of a partition, the upper part of which is a sliding panel. This can be pushed back to allow for sociability while the housewife is cooking, or kept closed for privacy in the culinary arts. Because the basic unit was specifically planned to fit the varied needs of varying families, it can be used as a normal five-room dwelling or as a two-, three- or four-room house, according to family size, inclination or occasion.

The construction of the house, simple post and lintel with a flat roof, is extremely economical. So are the finishes which are designed especially for ease of maintenance: cement plaster on both exterior and interior wall surfaces and asphalt tile flooring on cement slab. The money which would ordinarily go into trusses for a pitched roof, into foundation or cellar or into fancy trim and gingerbread has been channeled into excellent planning, large windows, built-ins and space, both indoors and out.

Assembly line job scheduling also cut costs. However, unlike traditional designs with which workmen are familiar, these modern houses required some experience before building could be speeded up. But after six houses, construction went faster than that of conventional homes.

Worst headache, of course, was financing. The builders were told time and again to intermingle "colonial, Cape Cod, Italian, Spanish and what have you" with a few modern dwellings. After months of plugging, the project was finally accepted on condition that only half of it be built at a time, to see how the houses sold. The finished project is proof of sales appeal.

CONSTRUCTION OUTLINE: Exterior walls — cement plaster, building paper, studs; inside—Rocklath and plaster, U. S. Gypsum Co. ROOFING—Johns-Manville Corp.; marble chips finish, Crystal Lime Corp. INSULATION—Reynolds Metals Co. SHEET METAL WORK—Armco Co. WINDOWS: Glass — Libbey-Owens-Ford Glass Co. FLOOR COVERINGS—Tile-Tex, The Tile-Tex Co. WALL COVERINGS: Bathroom—Marlite, Marsh Wall Products, Inc. PAINTS—W. P. Fuller Co. and Wesco Waterpaints, Inc. CABINETS—Formica counter tops, The Formica Co.; plywood facings—U. S. Plywood Co. HARDWARE—Schlage Lock Co., Holly Co., Vincent Whitney Corp. VENTILATING FAN—Pryne Co. BATHROOM EQUIPMENT—Crane Co. Shower—Price Pfister Co. PLUMBING: Water pipes—copper, Chase Brass & Copper Co. HEATING—gas fired, dual wall heater, Hammel Radiator & Engineering Co. Thermostat—General Controls, Corp. Water heater—Crane Co.



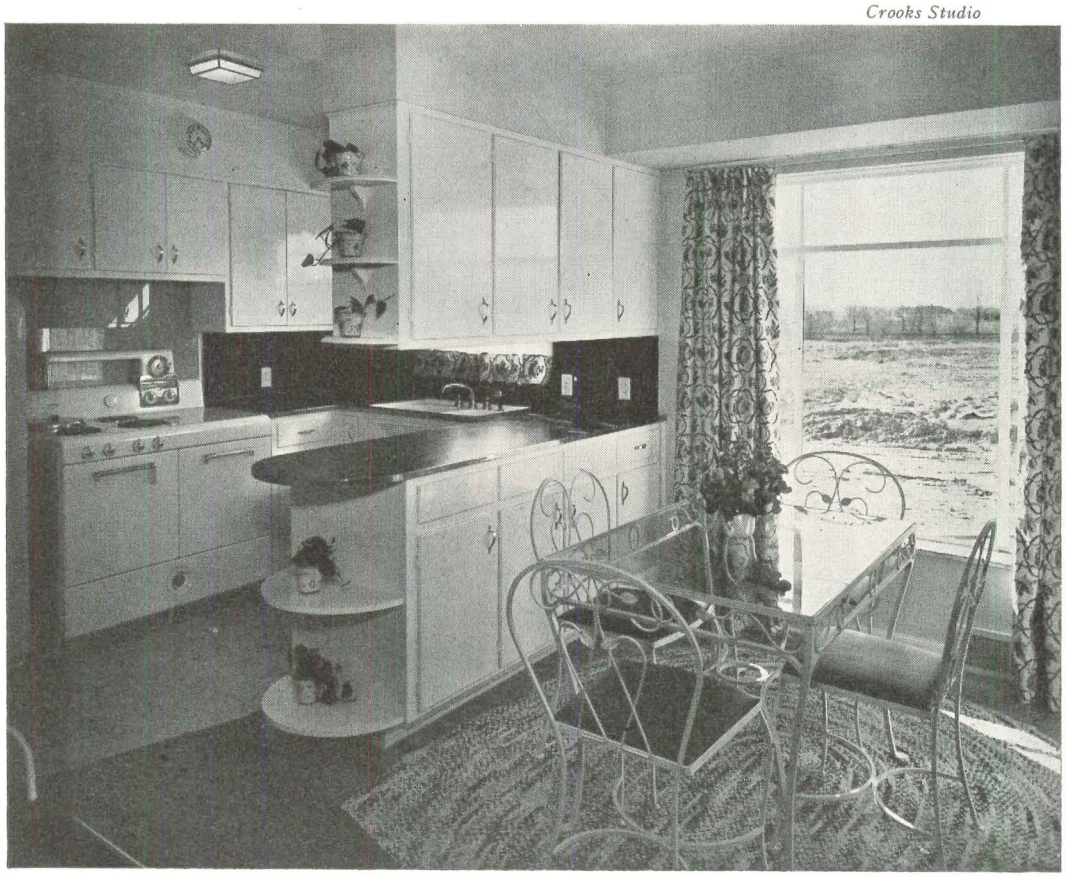
Frank Fulkersin

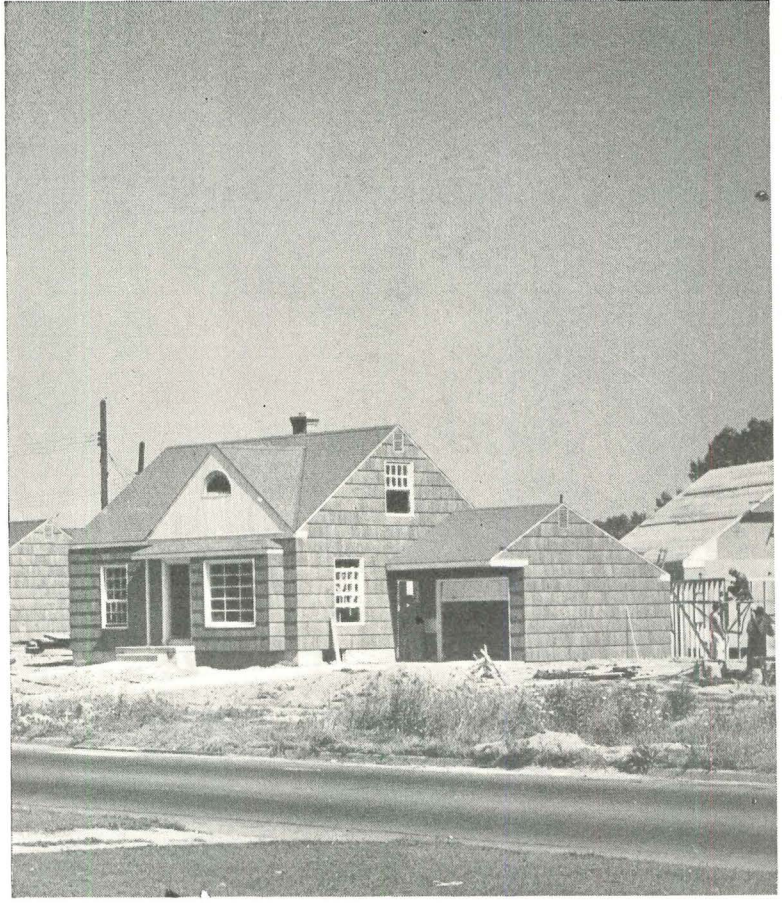
5. A LOT OF HOUSE for the money

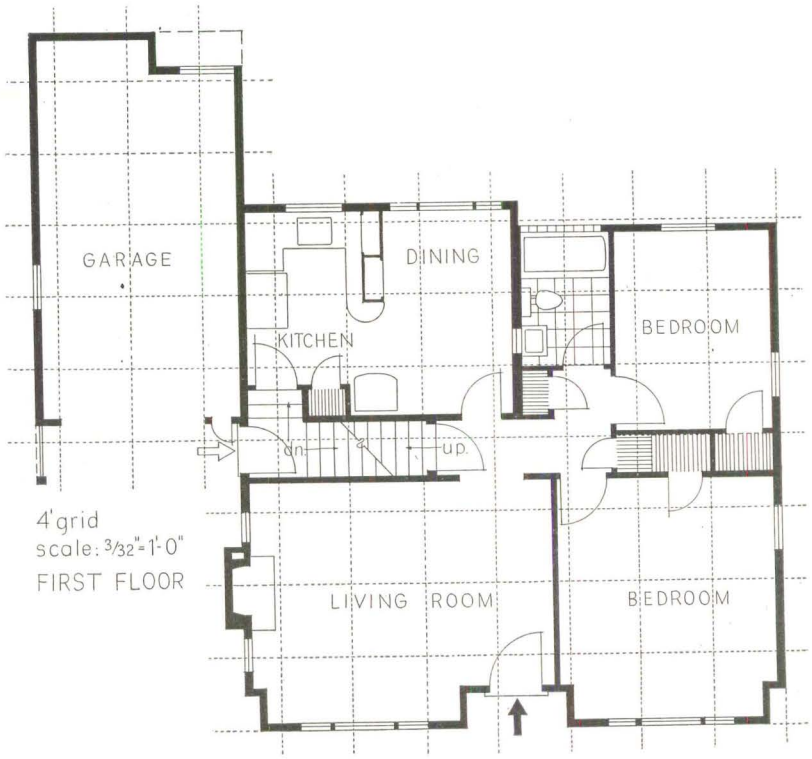
LOCATION: Flint, Mich.

BUILDER: Gerholz Community Homes Inc.

Crooks Studio







4'grid
scale: 3/32"=1'-0"
FIRST FLOOR

is offered in a traditional architectural brew, spiked with some modern ideas and latest mechanical gadgets

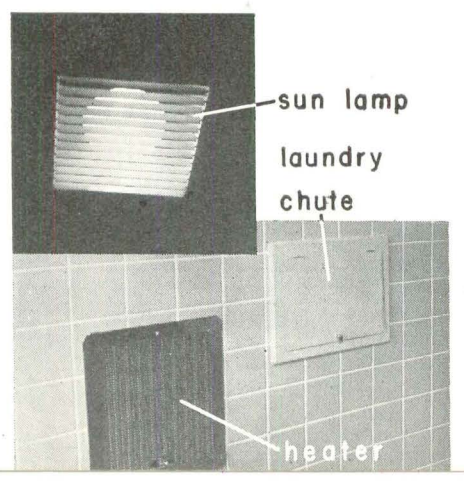
This 225-house development is in the best, time-tested tradition of the merchant builder. It offers three major attractions which the American customer has always gone for in a big way: 1) a gadgety bathroom equipped with built-in sun lamp, hair and hosiery dryer, clothes chute, towel cabinet, heater and electric shaver holder; 2) a familiar "traditional" style of architecture; 3) a lot of house for the money. For $10,450 the customer gets a three-bedroom house, for $14,500, four-bedrooms and an extra bath.

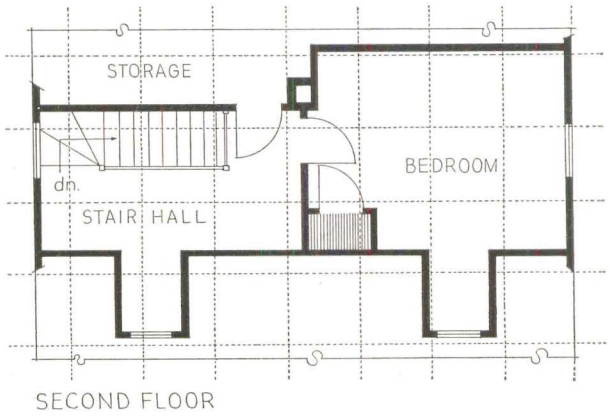
Garage and dinette with snack bar are important elements in this package. In some designs the ground floor is cantilevered 30 in. beyond the foundation to permit a full-size dining room without increasing excavation and masonry costs. The use of large picture windows and glass block places the homes in the twentieth century despite the shingles, clapboards and dormer windows which provide traditional flavor. However, the architect might have improved the livability of the houses by placing these large glass areas at the rear rather than in their present position directly overlooking the street.

Three basic floor plans are used throughout, and these are varied by the use of extended bays, front and rear, on the first floor, gables and dormers on the second and variations in the skin treatment. The cost of poured concrete foundations was cut by multiple-use steel forms.

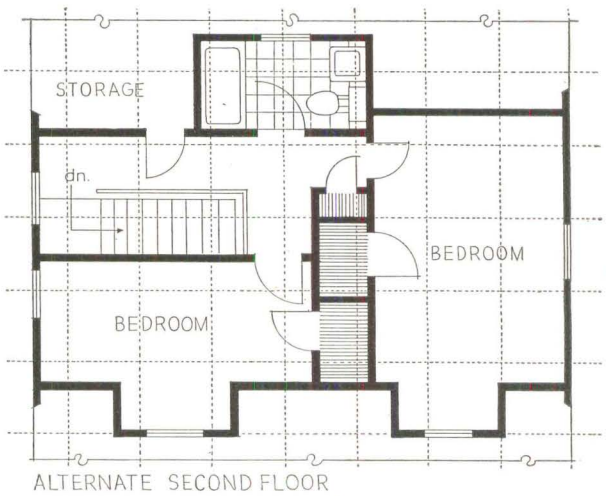


Glass block panel with inset movable sash combines bathroom privacy and ventilation. Below are other bathroom accessories.





SECOND FLOOR



ALTERNATE SECOND FLOOR

Crooks Studio

6. MODERN DESIGN: out West the customer is beginning to demand it

LOCATION: El Cerrito, Calif.

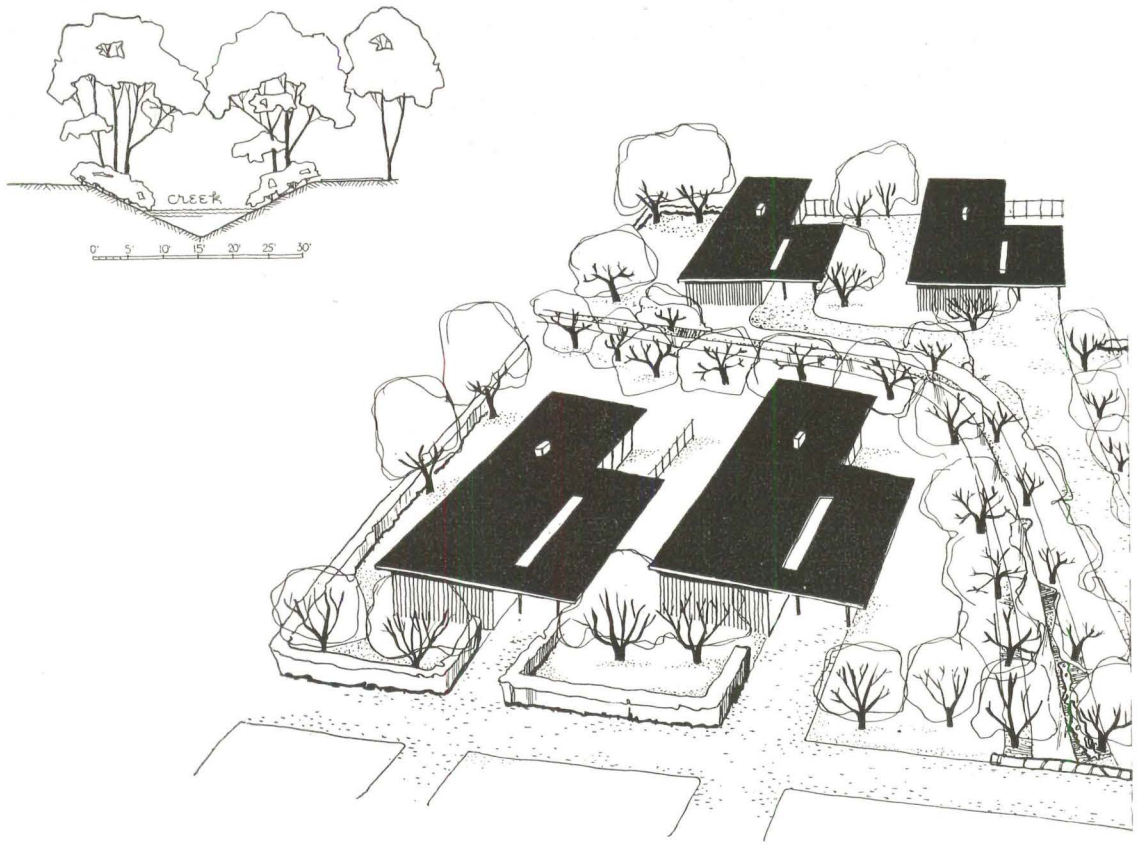
BUILDER: Willis Foster

ARCHITECT: Roger Lee

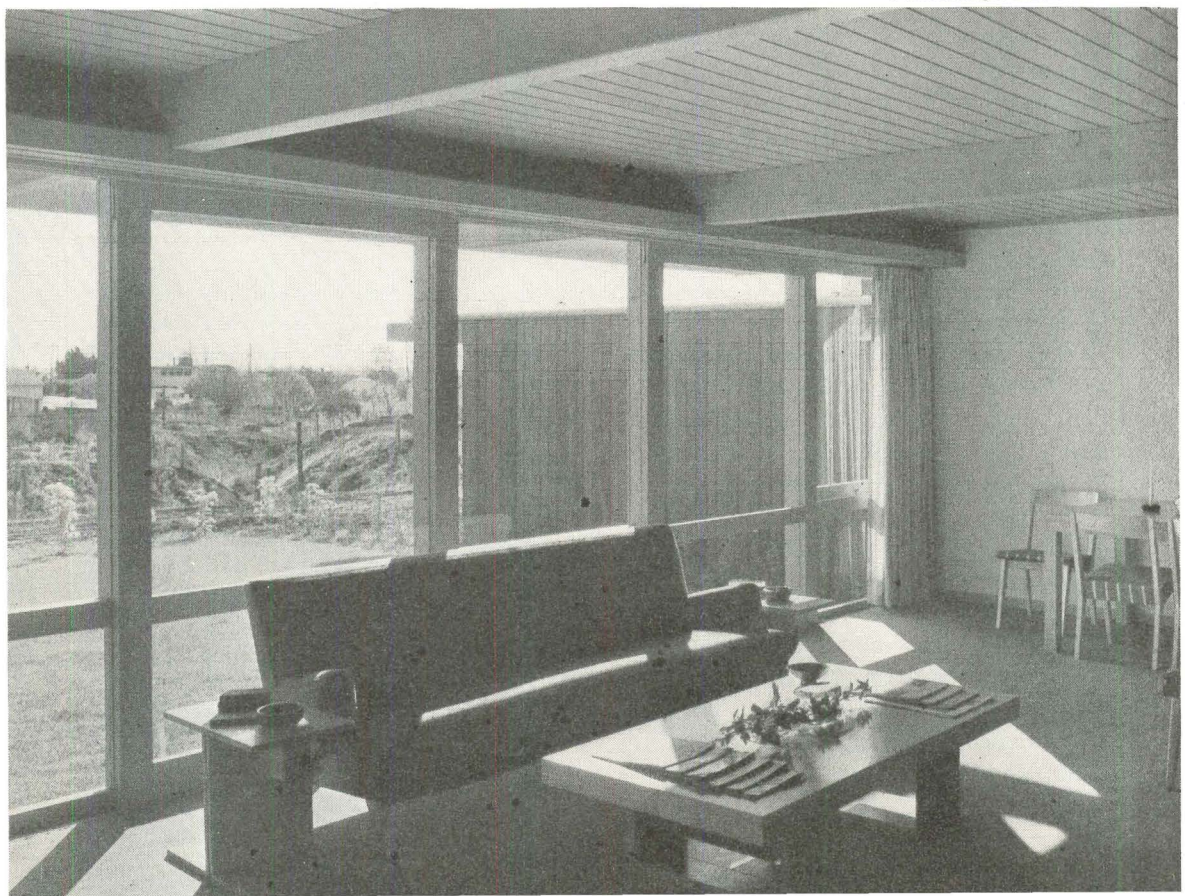
"We would like to see our house in a well planned community among other modern houses rather than in a mixed-up neighborhood of green shutters and white picket fences." This is the remark, repeated by numerous customers, which inspired California builder Willis Foster to put up a group of six modern speculative homes on an acre of land within the El Cerrito city limits. In addition to customer demand, the plot of ground already owned by the builder called for the best in house design and landscaping to counteract the disadvantages of its rather mediocre neighborhood in selling quality homes. The architect thus persuaded Foster to restore a small creek running through the property which had become a dump heap for tin cans and garbage. In the new development, this will be a park strip, planted and landscaped as a focus for the self-contained housing group.

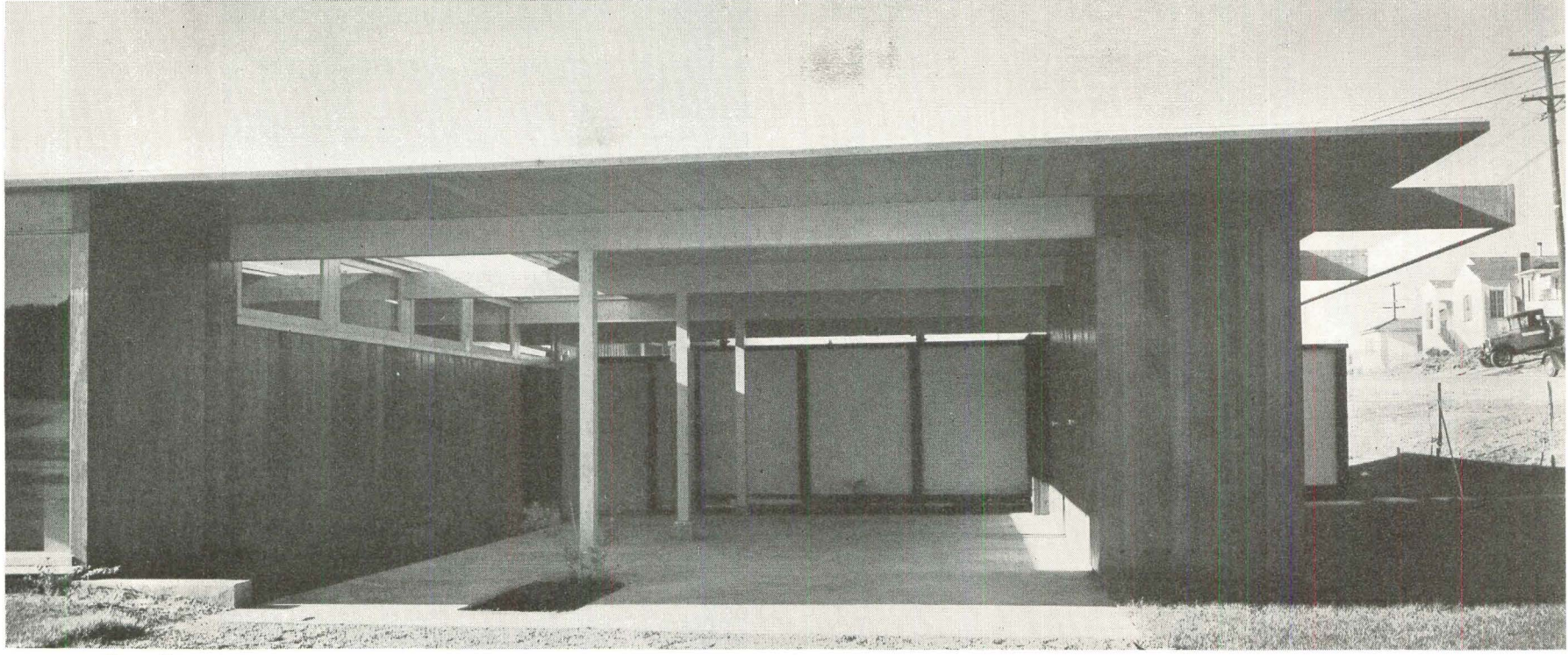
Because he was catering to middle income families, the builder did not skin his houses to the bone to meet "necessity" competition. They were designed as permanent homes including all the amenities desired by the average family. On the other hand, since they were not luxury houses either, cutting cost was important to give the customer the most for his money. Repetition of one good basic design with variation in garage and entrance placement was the answer. Foster has thus managed to provide a three-bedroom house with one-and-a-half baths, excellent planned storage, radiant heating and sliding glass wall panels for $14,500, including 5,000 sq. ft. of land. Privacy, despite the large glass areas, is provided by the projecting garages, staggered siting and landscaping which separates the individual houses and, at the same time, ties them together into a unit shielded from surrounding neighborhoods.

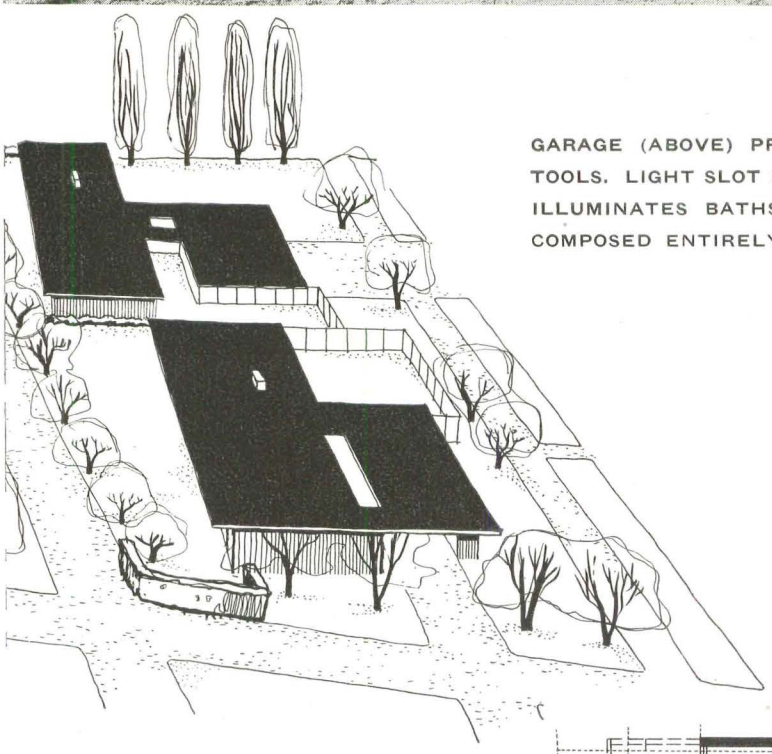
The structure of the house is based on 4 ft. and 8 ft. modules. Tongue and groove roof planks, 2 in. thick, are supported by beams spaced 8 ft. on center which, in turn, are supported by 4 in. sq. posts. All roof planks, beams and posts are left exposed. This type of framing is an excellent example of how honest design can also save money. Costs are considerably cut because the structural elements are themselves the finished product. Insulation is provided by the use of ¾ in. fiber board between the tar and gravel roofing and the roof planks.



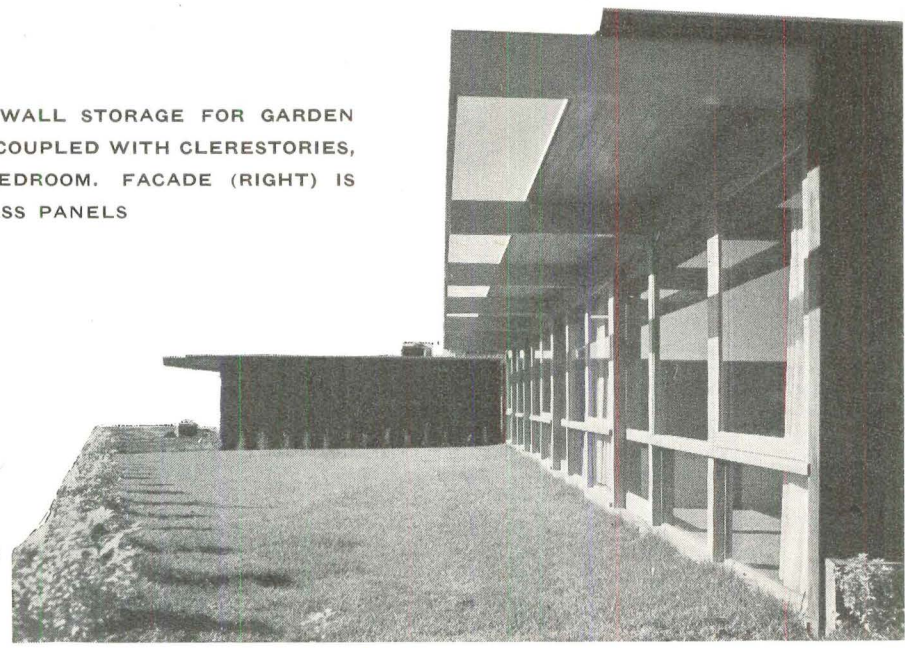
Photos: Roger Sturtevant

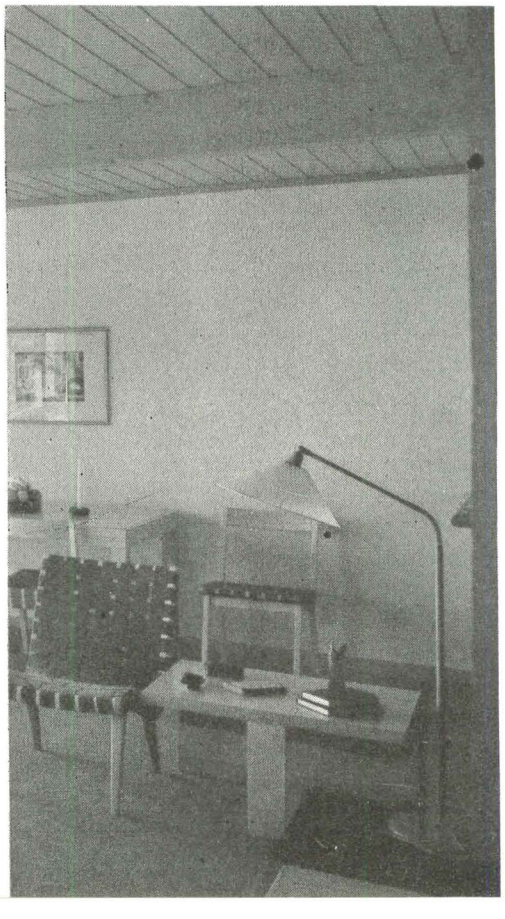


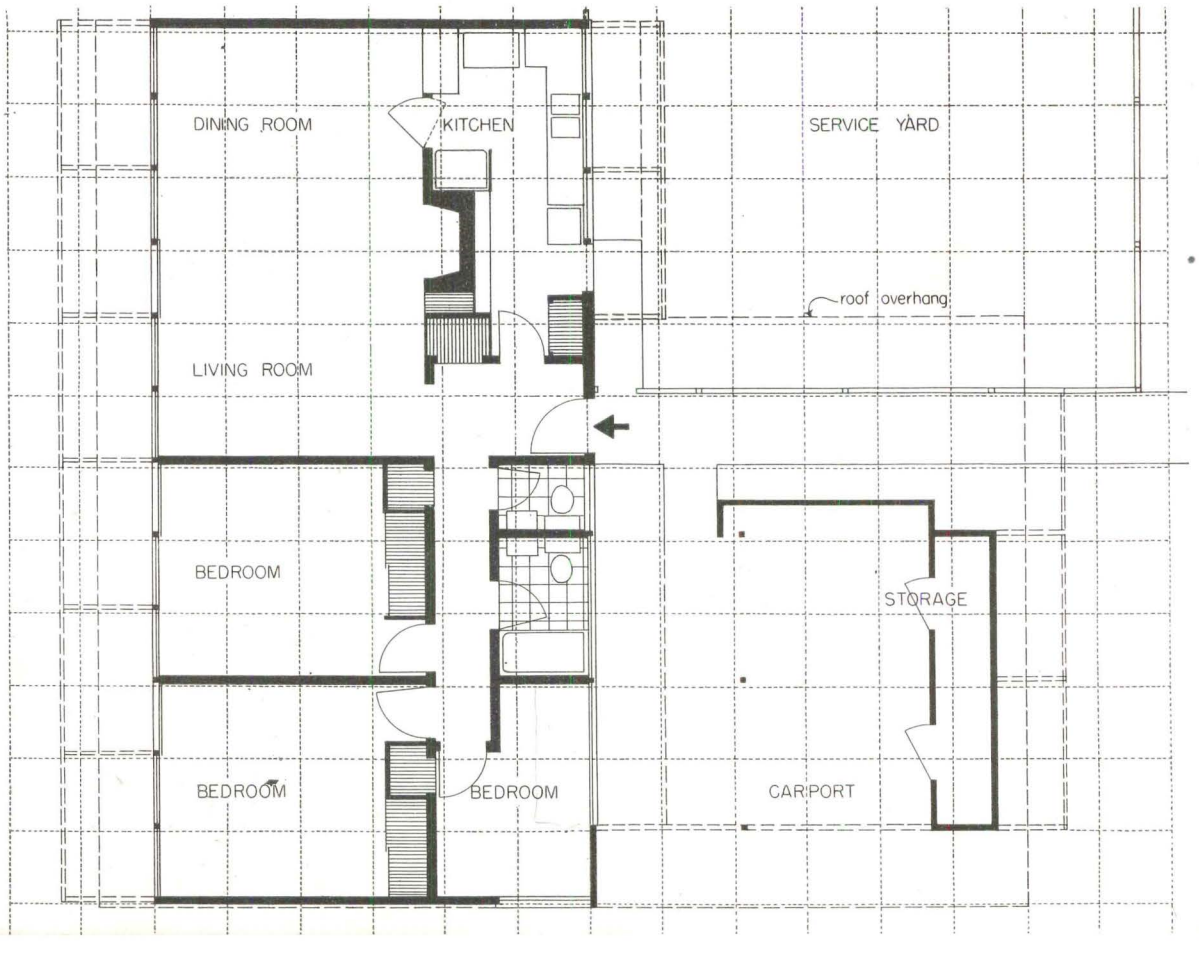




GARAGE (ABOVE) PROVIDES WALL STORAGE FOR GARDEN TOOLS. LIGHT SLOT IN ROOF COUPLED WITH CLERESTORIES, ILLUMINATES BATHS AND BEDROOM. FACADE (RIGHT) IS COMPOSED ENTIRELY OF GLASS PANELS



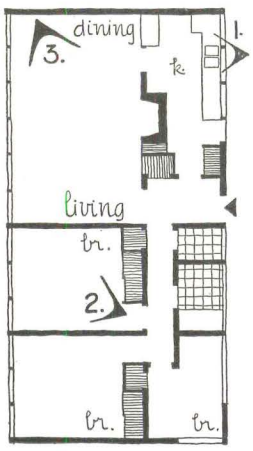




Simple, flat-roofed rectangular plan cuts costs; liberal use of glass, wood paneling ups quality

COST BREAKDOWN PER UNIT

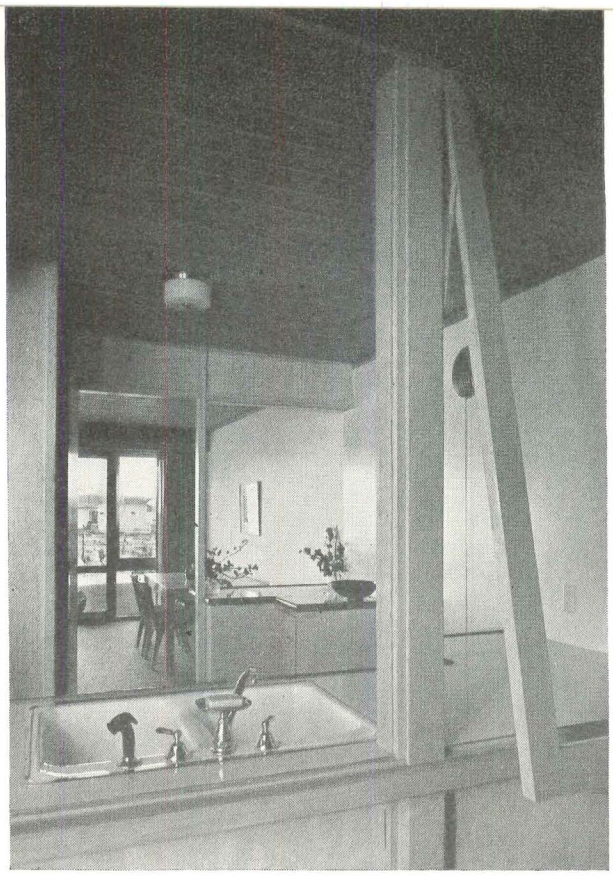
Land		$867.00
Improvements		
Utilities	$125.00	
Landscaping & grading	400.00	
Roads	125.00	
Sidewalks and curbs	250.00	
		$900.00
Construction		
Basic house	$9,350.00	
Carport, storage & fence	1,040.50	
		$10,390.50
Fees		
Builder	$1,000.00	
Architect	500.00	
Realtor	725.00	
Landscape architect	42.50	
Engineer	75.00	
		$2,342.50
Total		$14,500.00



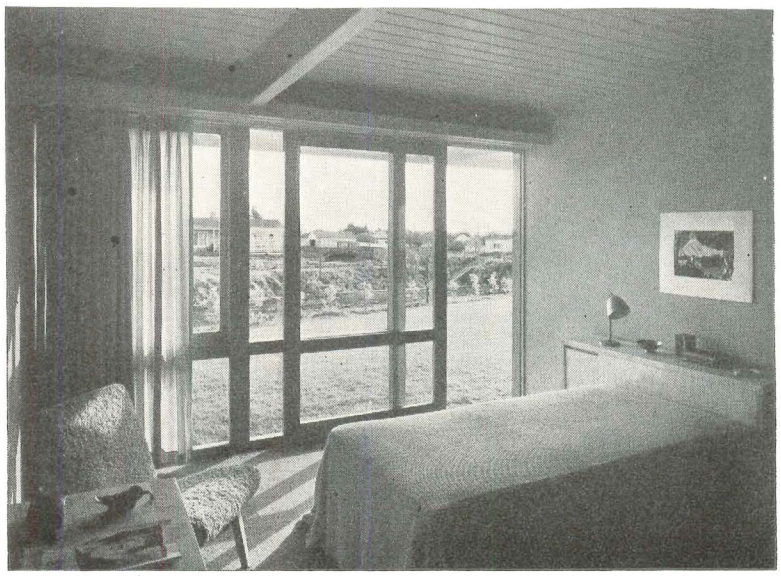
CONSTRUCTION OUTLINE: FOUNDATION—concrete. WATERPROOFING AND ROOFING—Pabco, Paraffine Co.'s. FLOORS—concrete slab. CEILING—Douglas fir. INSULATION—Firtex, Dant & Russell. FIREPLACE: DAMPER—Heatilator Corp. GLASS — Libbey-Owens-Ford Glass Co. WALL COVERINGS—Sheetrock, U. S. Gypsum Co. PAINTS — W. P. Fuller & Co. DOORS — U. S. Plywood Co. HARDWARE — Schlage Lock Co. VENTILATING FAN—ILG Electric Ventilating Co. BATHROOM EQUIPMENT — American Radiator-Standard Sanitary Corp. HEATING—radiant system in slab. Water heater—Hoyt Heater Co.

Use of the same vertical redwood siding inside and out unifies the design, gives a feeling of warmth and luxury to the simple, rectangular box. Handsome fireplace detail is unusual in a house of comparatively modest price.

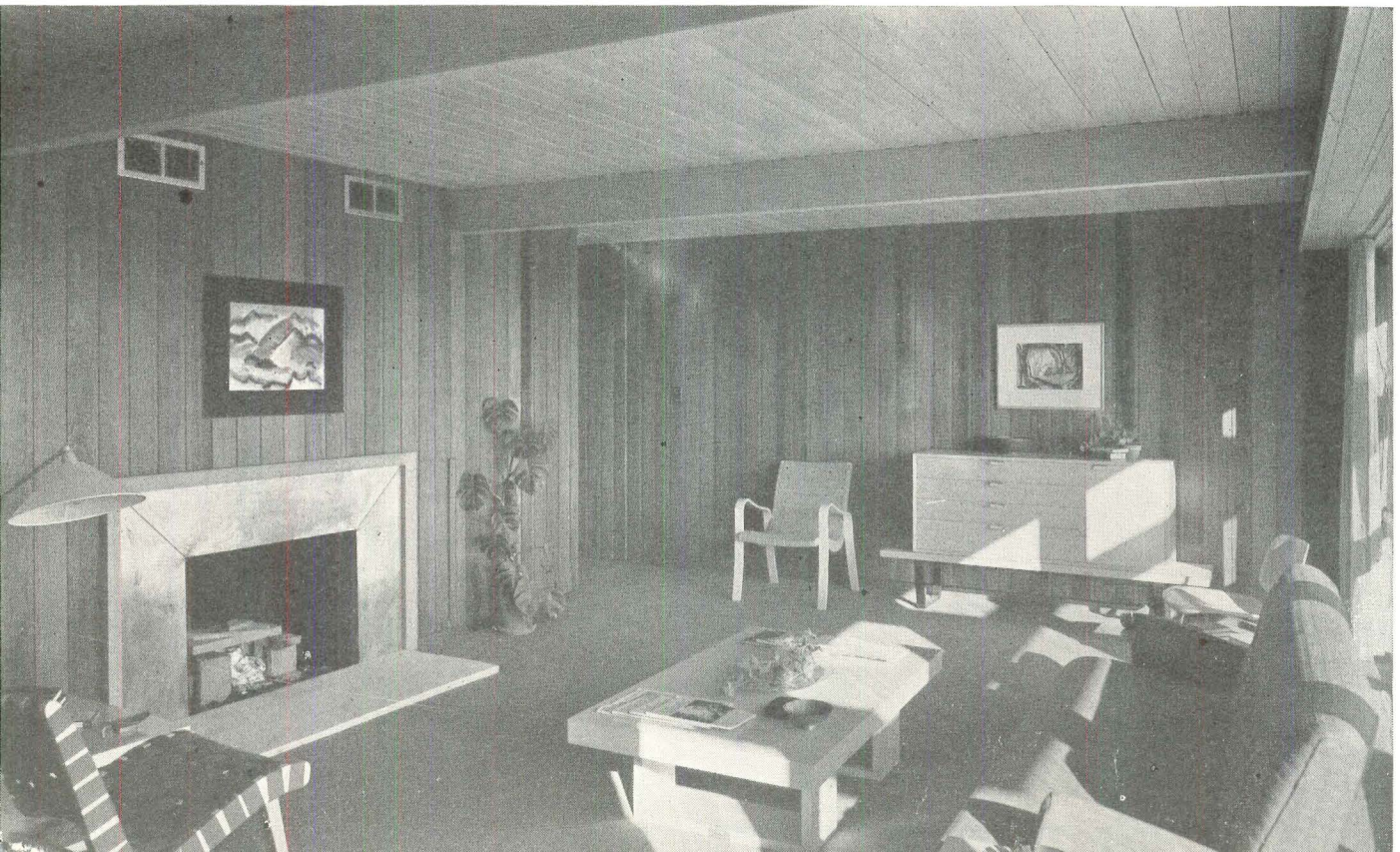
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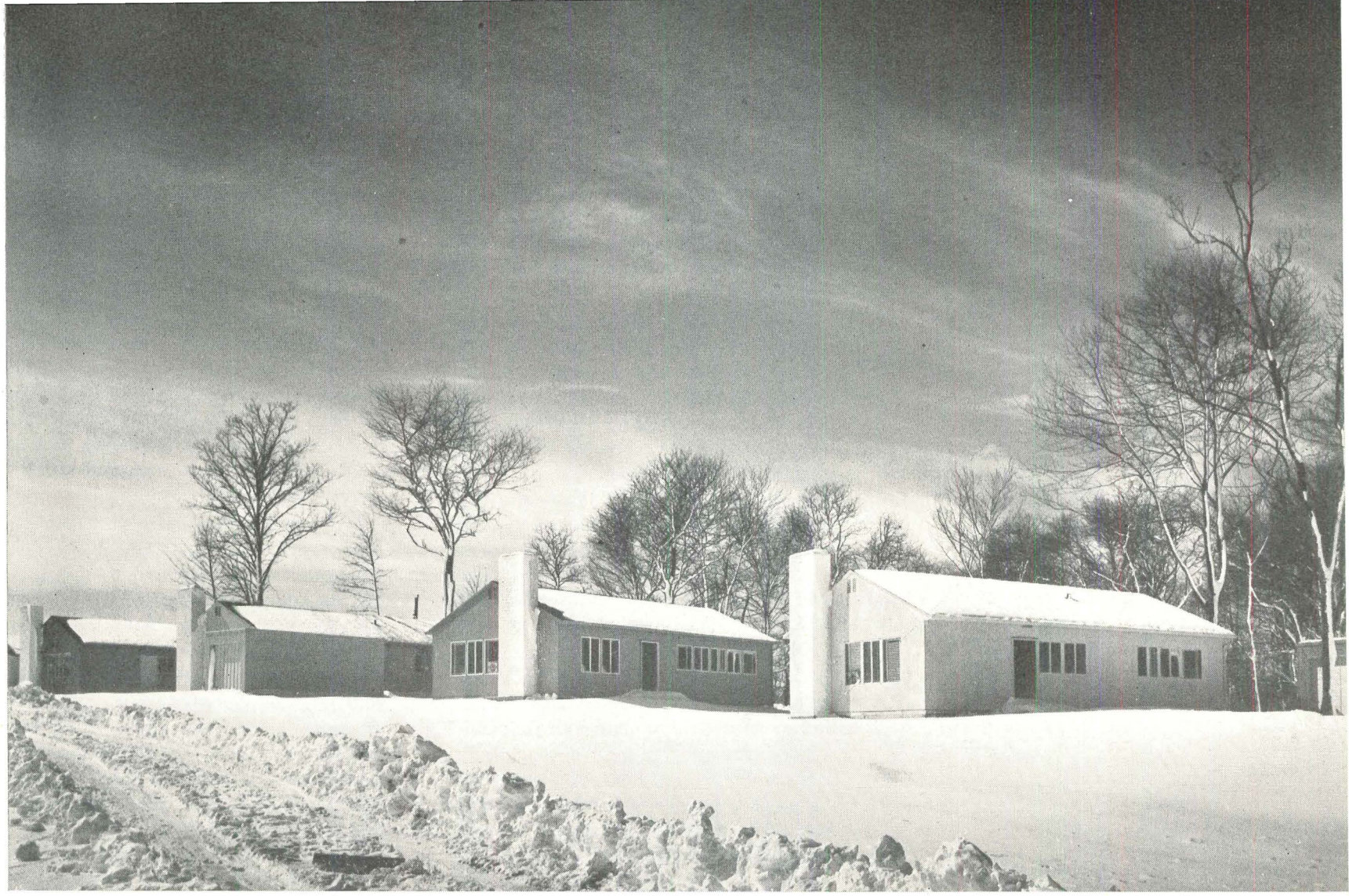


1. VIEW FROM SERVICE YARD THROUGH THE KITCHEN



2. GLASS-PANELED BEDROOM WILL BE SHIELDED BY PLANTING





7. BUILDING WITH PREFABS is exploited by one big firm which assembles several different houses on several different sites

LOCATION: Suburban New York City

BUILDER: Pennurban Housing Corp.

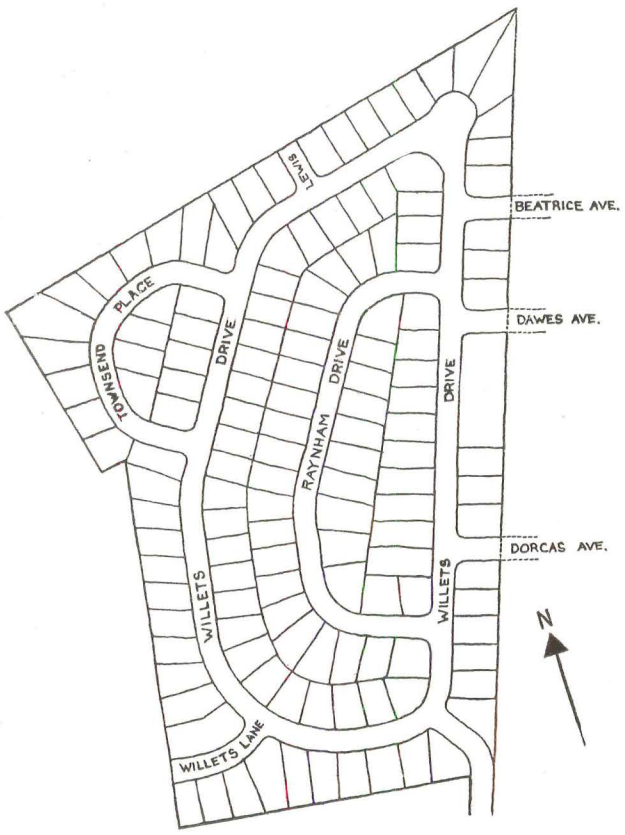
A persisting puzzle in American housebuilding is what to do with a factory-produced prefabricated house after it leaves the assembly line. Many merchant builders, of course, have never gone beyond the snorting stage in considering prefabs. But even those who have given the matter serious thought are perplexed, and so are some of the men within the new industry itself, when the time comes (as it must to all industrial producers) to take their commodity to market.

Pennurban Housing Corp. of New York, a postwar organized firm of associates with years of diversified experience behind them in building, real estate and finance, think they have an answer to the great problem, and they have recently demonstrated their solution in three different prefab developments within commuting distance of New York City.

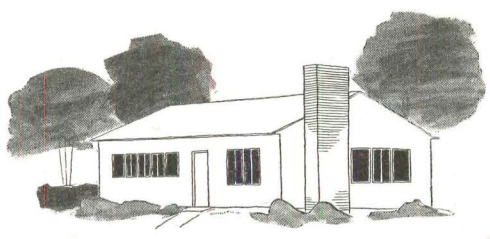
Pennurban, as befits a building organization which specializes in prefabs, is not similar to most merchant builders, although their motives are about the same—roofs and return. The corporation was set up in 1947 by three men (photos, p. 74) for the purpose of "carrying on the development of large scale middle-income housing projects of detached homes, in the capacity of a development agency for investment interests, and industries seeking employee housing." Their plan of operation embraces market analysis, site selection, land and unit planning, FHA processing, construction, sales and management, or any combination of these functions. In favorable circumstances (when the project sponsor is the site owner as well) interim financing prior to construction loans may also be provided through the firm. Pennurban specializes in the factory built house for a very simple reason: they can get construction efficiency without a heavy capital investment. They are organized to be an efficient, and a complete middleman between the factory and the site.

Their three current developments are a 142 house colony of Harman steel houses at Syosset, Long Island, a 40 unit development of American House prefabs at Pleasantville, Westchester, and, in Bayville, Long Island, a set of houses manufactured by Fabricated Homes, Inc. Studies are now under way for several investment housing projects in Westchester and Long Island using Reliance houses and those of another manufacturer. The first two will be rental developments.

Pennurban has put up developments in a general geographic area where the combination of zoning, labor, and climatic conditions is less than favorable to prefabs, but the corporation and the backers in each instance are seemingly happy with the results. Keys to their success are good land planning of the similar buildings to overcome consumer objections to monotony, together with utmost efficiency in building. Says Albert Levy, one of the firm's principals and an architect, "I think our Syosset development in particular is a very good demonstration of the fact known by all land planners that you can use virtually identical houses provided you plan them well on the land. You don't need to have a dinky facade on each one down the line. And, it is of utmost importance to select a contractor, if



SYOSSET SITE PLAN takes advantage of the rolling terrain, gives a feeling of variety to the projected 142 identical prefabs.



HARMAN HOMES, INC.



AMERICAN HOUSES, INC.



RELIANCE HOMES, INC.

you can find one, who has had some experience with prefab construction, even if it was putting up Quonsets in the Seabees. If a man is set in his mind against prefabs, as many are, he just does not make a good contractor in that type of construction. That is a reason for a number of developers' prefab troubles."

In the Syosset development, Pennurban used the house of a manufacturer, Harman Homes, who went into bankruptcy in December; the developers, however, are highly satisfied with the steel houses designed by Oscar Stonorov, and would like to get more of them. "It's an excellent design . . . we had very little difficulty in taking inexperienced carpenters, ex-GI's and others who had trickled into the carpenters union without a great deal of experience behind them, and getting the houses up fast. You can put up one of these shells in about 90 hours.

"Of course the business of just getting this thing built was a terrific thing financially because of the novel construction method. You have to placate all your construction groups, winning the sympathetic support of your carpenters, overcoming all the usual difficulties of anything which is new. A firm which never had erected Harman houses before could hardly be expected to give you a lump sum bid; no one will give such a contract when he may go way off through lack of experience. So the system was this: we entered into an agreement with the contractor to erect five houses including finishing out the interior —keeping complete breakdowns. Certified statements of men on the jobs were also very helpful in arriving at theoretical information on the houses. Then we had a series of conferences, argued it out, and wrote the contract."

The three bedroom houses at Syosset sold at $12,950. The original amount of the FHA mortgage commitment was $8,600, but it was later upped to $9,400 under a 20-year, 4½ per cent, Title II loan. VA loan for a veteran was $2,590—20-years at 4 per cent. Down payments were $960 for veterans and $3,950 for others.

Houses in the Pleasantville development were more expensive, selling from $18,500 to $18,900; one reason for this was the refusal of the town board to accept a prefab which made fewer concessions to tradition than that which finally was used, American Houses' colonial. But a unique real estate deal with the rich, conservative commuter's town was one of the fruits of Pennurban's impressive organization. Pleasantville sold the firm tax forfeited lots at a bargain price in return for a strong say in the type of development Pennurban would put up. The quarter acre lots had a market value of about $2.500, but were released to Pennurban at $500. Mayor Fred Johnson explained why: "If we had sold the lots at public auction it would have been impossible to predict what would be built. No local builders were able to raise the capital needed for the type of development we wanted to see . . . In our small rural village the tax rate is a large problem. Most of the people shop in New York City. We have little in the way of commercial property to levy on. Unless we maintain a high level of realty values, it will be impossible for the town to provide the services that people expect without increasing the tax rate . . . The present arrangement satisfies everyone concerned."

Levy applies no mute to the complications of financing these prefab erection operations, returning always to the point that operational efficiency makes or loses the profit. "Working out the investment on a thing like this is extremely complicated because you cannot draw from banks for your site work, only for the buildings. So there is a lag until you get your first construction to the point where you can draw money. Then for a long period you will be running on, utilizing all your working capital, operating exclusively on the construction loan drawn from the bank—this together with the fact that we arrange for a monthly payment, as you must on a large operation, thus operating on the contractor's credit too. Eventually you come into a period where you are not only building houses and drawing from the bank but beginning to sell them, and receiving your sales income too.

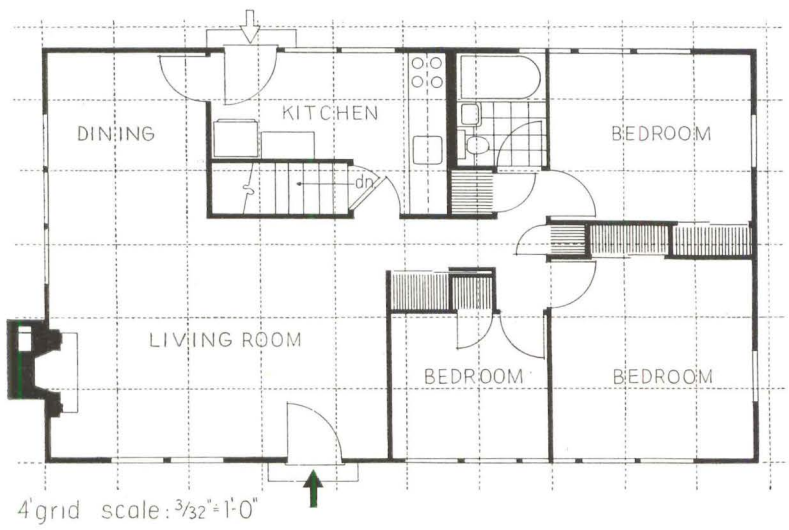
"One of the other problems with prefabs is that the final package can be bollixed up by contractors who turn them into atrocities—which is happening in a good many cases. If the houses are done according to Hoyle you get good results; but some are so butchered by the way they're put together, and the way they are sited and the little changes made by a carpenter-contractor, that they are ruined."

Levy has little sympathy with measures of fabrication short of factory-built houses. "Factory built houses represent the hope of the prefabrication industry—not this business of precutting, assembling panels, and setting up huts, lifts, assembly lines at the site. Pennurban's conception is that there be a prefabrication industry turning out a variety of houses which can be used by a developer. The operation should be the same as that of any industrialized product reaching the market—the prefaber keeping the inventory, marketing his product, and handling all that. This, tied in with an operation like ours, is more economically feasible than a lot of site fabricating by a few vast operators."



HARMAN HOUSE is steel framed and finished outside with painted steel panels. Large chimney improves its appearance, seems to anchor the house to the ground.

Photos: Gottscho-Schleisner



INFORMAL SITING, illustrated below, overcomes one of the public's prime objections to a group of prefabricated houses—the standard size and shape of the houses.



8. COMMUNITY BUILDERS with developments in several price ranges, in addition to rental housing, will be difficult to unseat by market variations

LOCATION: San Francisco, Calif.

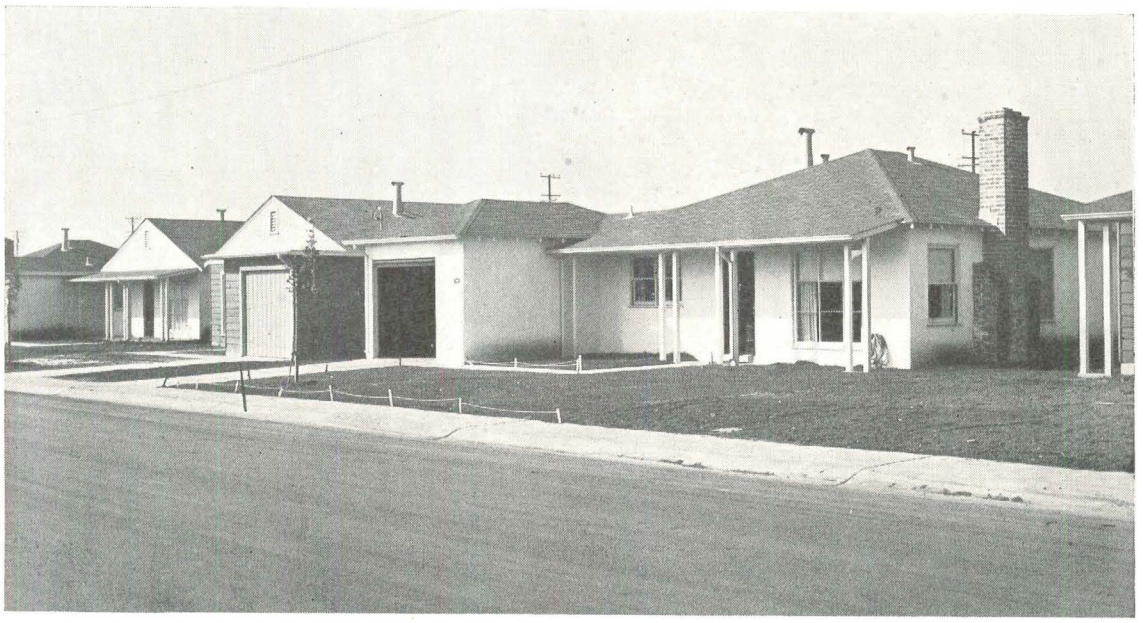
BUILDER: David D. Bohannon Organization

The David D. Bonhannon Organization of California label themselves Community Developers, and the tag is an accurate one. Emphasis in this big-operating firm of private housers is out beyond the dwelling unit, as compared with most other big builders. Bohannon's men have a shrewd talent for predicting what kind of houses will be in demand, and a practiced technique for binding them into appropriate communities.

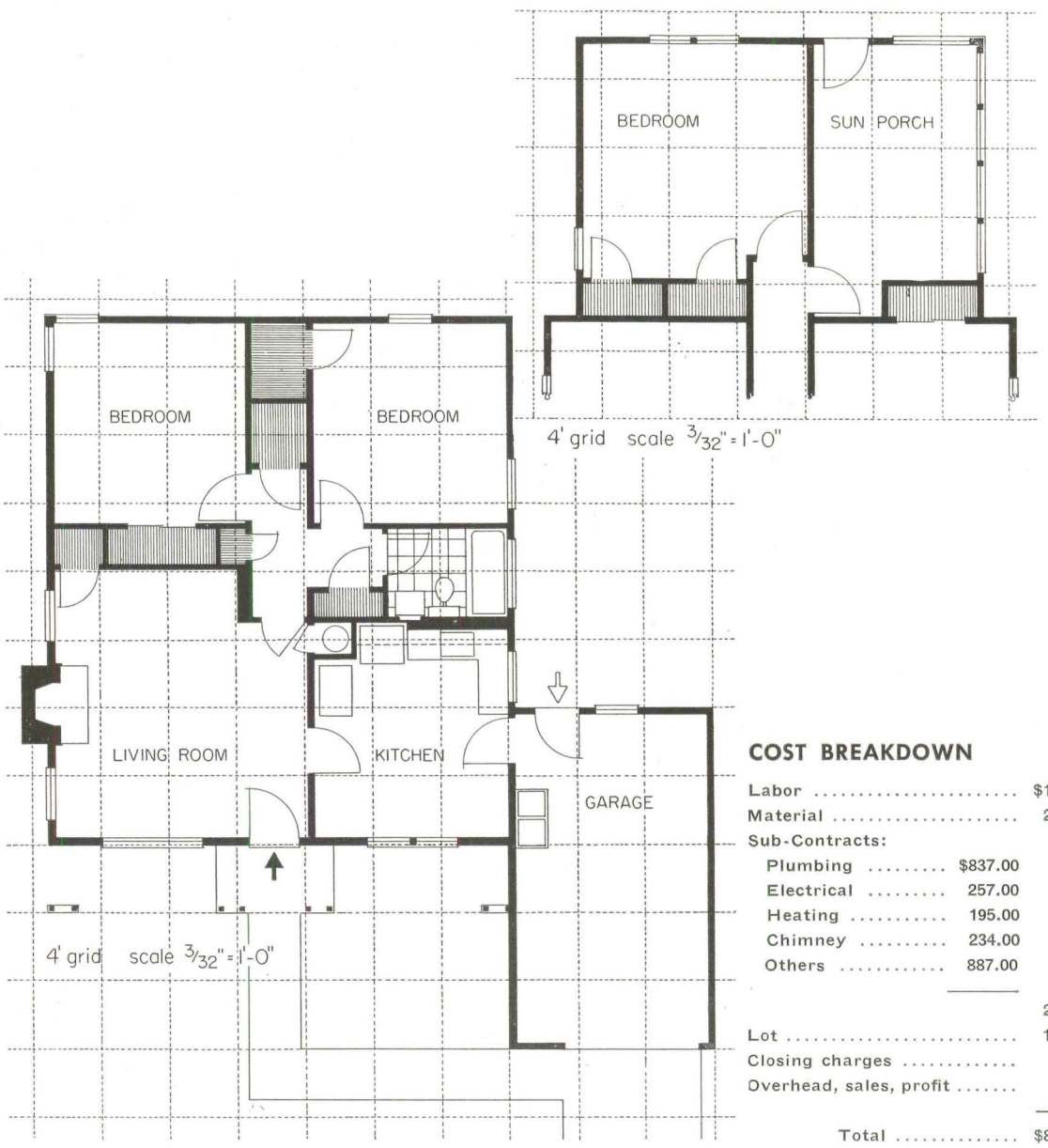
Their two big developments near San Francisco are 1) San Lorenzo Village (see air view), a 600-acre 2,400-home town on the easterly shore of the Bay, about 12 miles south of the center of Oakland, and 2) Hillsdale, an 800-acre project in southerly San Mateo on the peninsula, about 18 miles from San Francisco (page 138).

Guiding the planning of this big and bright organization is a strong suspicion that the market for the $11,000 to $20,000 house in California today is dormant. San Lorenzo will meet the minimum market with $8,700 houses. Hillsdale is aimed higher, but Bohannon is thinking about lowering his sights to an $11,000 house there. His 705-unit Title 608 rental housing project at Hillsdale catches much that is in between in today's market. Thus, the Bohannon organization is in an excellent position to concentrate their building in whatever price range is most profitable.

Bohannon's San Lorenzo house is styled much to the wishes of a poll he took last year of prospective buyers at Hillsdale. Favorite by far there was ranch type, with modern a poor last to what is called "Hillsdale Contemporary" and colonial. The two-bedroom house put in production here could not be ranch house, because plots are not large enough. (Cost for sites, roads and services is figured to be $1,500 per unit.) An attempt, however, was made to repeat the popular ranch image—principally by overhanging eaves. Houses are built on 4 in. slabs over rock fill with pea gravel insulation. Floor plans are similar, with mirror reversals to vary the pattern somewhat, and further differentiation in exterior finishes and roof lines. Initial down payment by veterans is $800 with monthly payments of $62. Nonveterans pay $2,100 cash and $53 per month. The loan is $7,200 Title VI and $1,300 GI.



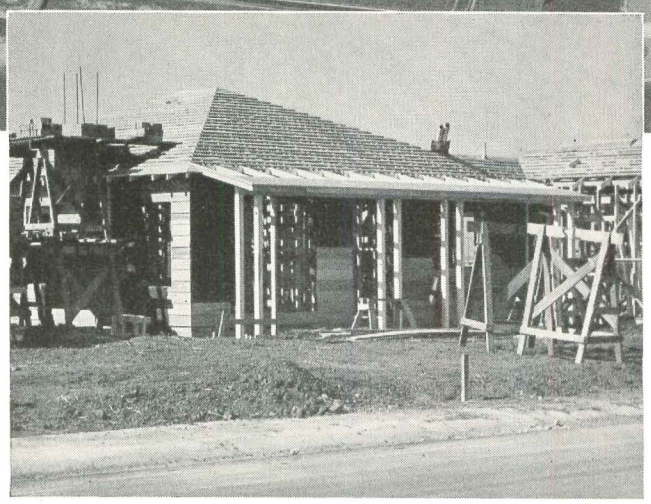
SAN LORENZO'S CURRENT HOUSE DESIGN WILL BE IMPROVED IN 1949 MODELS (P. 138)



COST BREAKDOWN

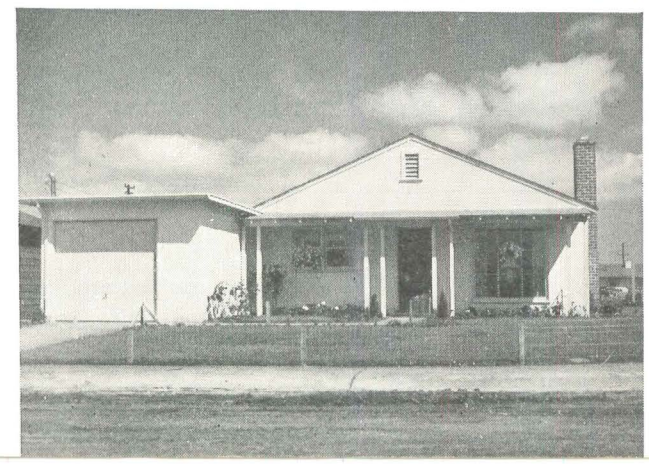
Labor		$1,599.00
Material		2,211.00
Sub-Contracts:		
Plumbing	$837.00	
Electrical	257.00	
Heating	195.00	
Chimney	234.00	
Others	887.00	
		2,410.00
Lot		1,500.00
Closing charges		266.00
Overhead, sales, profit		714.00
Total		$8,700.00

R. L. Copeland



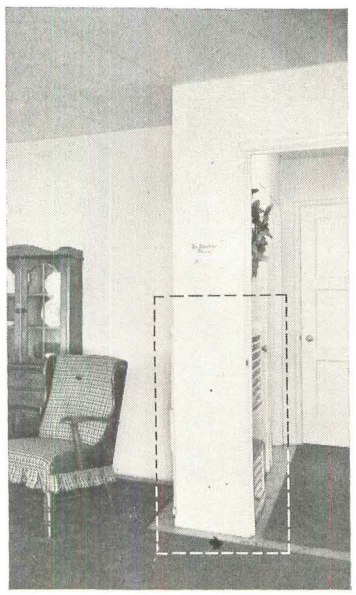
CONSTRUCTION IS CONVENTIONAL BUT ORGANIZED

EACH FACADE HAS A PORCH AND A LARGE WINDOW



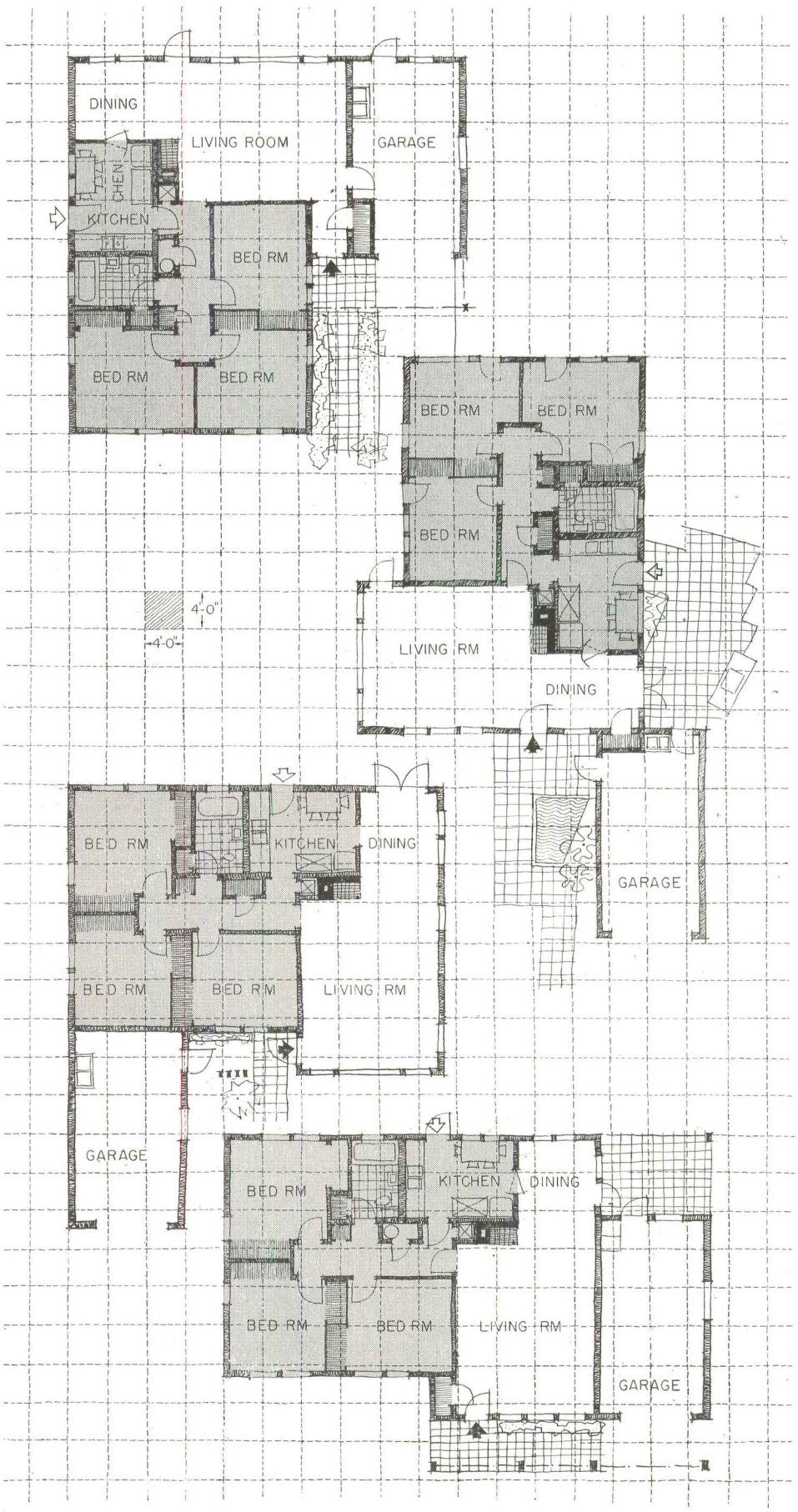
CONSTRUCTION OUTLINE: Exterior walls—redwood siding or stucco, studs, Empire Board, Pacific Portland Cement Co. and Pac-Tex, U. S. Gypsum Co. Floors—asphalt tile finish, Armstrong Cork Co. ROOFING—redwood shingles, Hillsdale Shingle Co. or Pabco, Paraffine Co.'s. Decks—4-ply tar and gravel. SHEET METAL WORK—26 gauge galvanized iron. WINDOWS: Sash—Douglas fir, Pacific Mfg. Co. Screens—Rylock Co. Glass—single strength. PAINTS—Kelly-Moore Paint Co. and California Stucco Co. WOODWORK—pine, Pacific Mfg. Co. HARDWARE—Kwickset Lock Co. ELECTRICAL INSTALLATION: Switches—General Electric Co. Fixtures—San Francisco Lighting Co. KITCHEN EQUIPMENT: Sink—Kohler Co. Tile drainboard—U. S. Quarry Tile Co. Cabinets—Pacific Mfg. Co. LAUNDRY EQUIPMENT: Sink — Eagle Mfg. Co. BATHROOM EQUIPMENT — Kohler Co. HEATING—warm air dual wall heater system, Commonwealth Furnace Co. Regulator—General Controls Co. Water heater — Mission Water heater Co. SPECIAL EQUIPMENT: Door chimes—Authotone Chime Co.

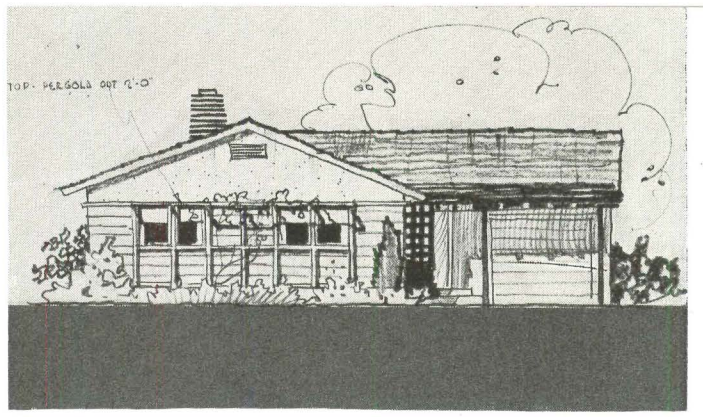
ONLY HEATING necessary in mild climate is furnished by a unit which can be housed in the wall, indicated in photograph below.

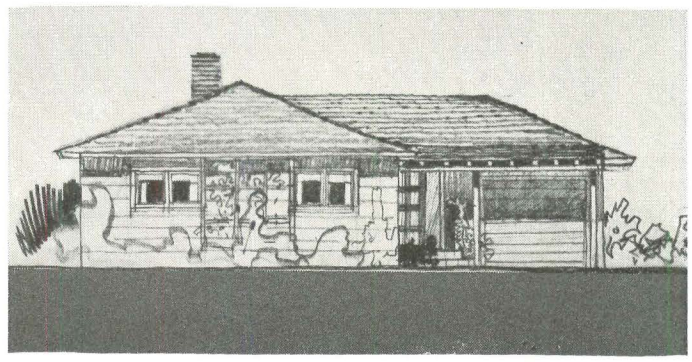


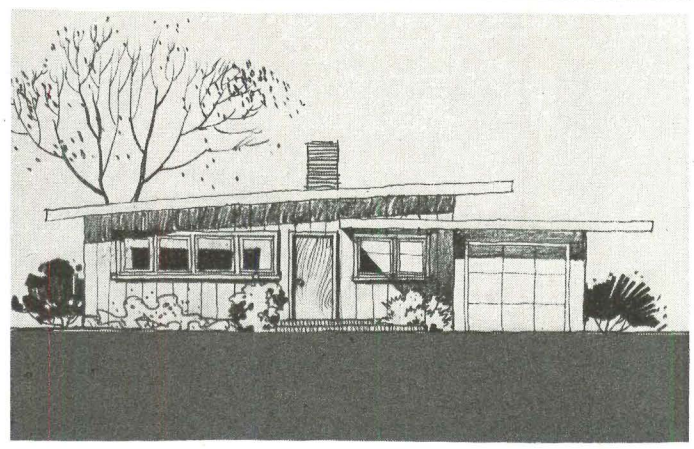
1949 models are better designed, higher priced

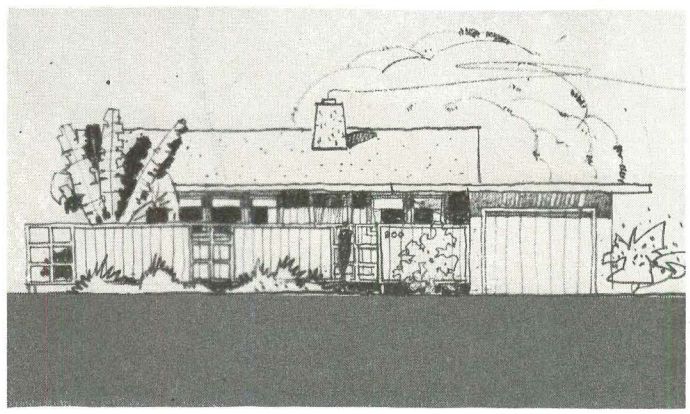
Newest decision of the Bohannon organization is to advance the design of the low cost San Lorenzo house a notch and price it at $9,200, in nine variations. Six are shown in sketch form on this page. Planners in the organization think this will be a much more saleable house and basically a more economical investment for the home owner as well as the community developer. Bohannon houses are not prefabricated site-unseen, but are put together in place with precut lumber by highly trained and highly specializing crews. For example, four different framing crews operate on the San Lorenzo house, each specializing in one phase. Bohannon figures his architectural costs per house at about $32.

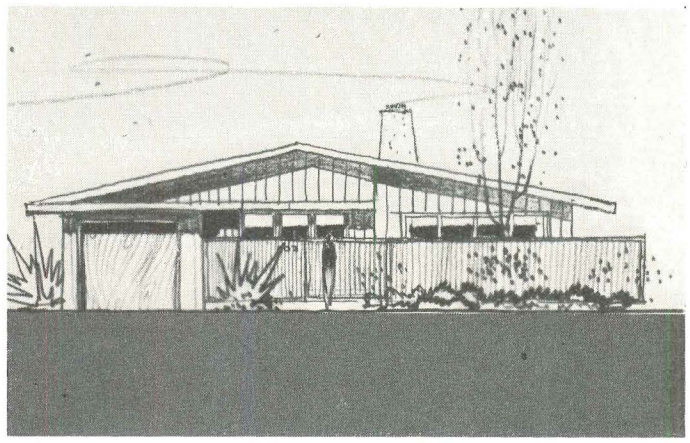


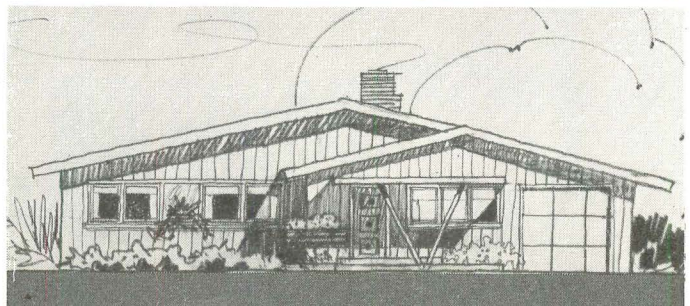






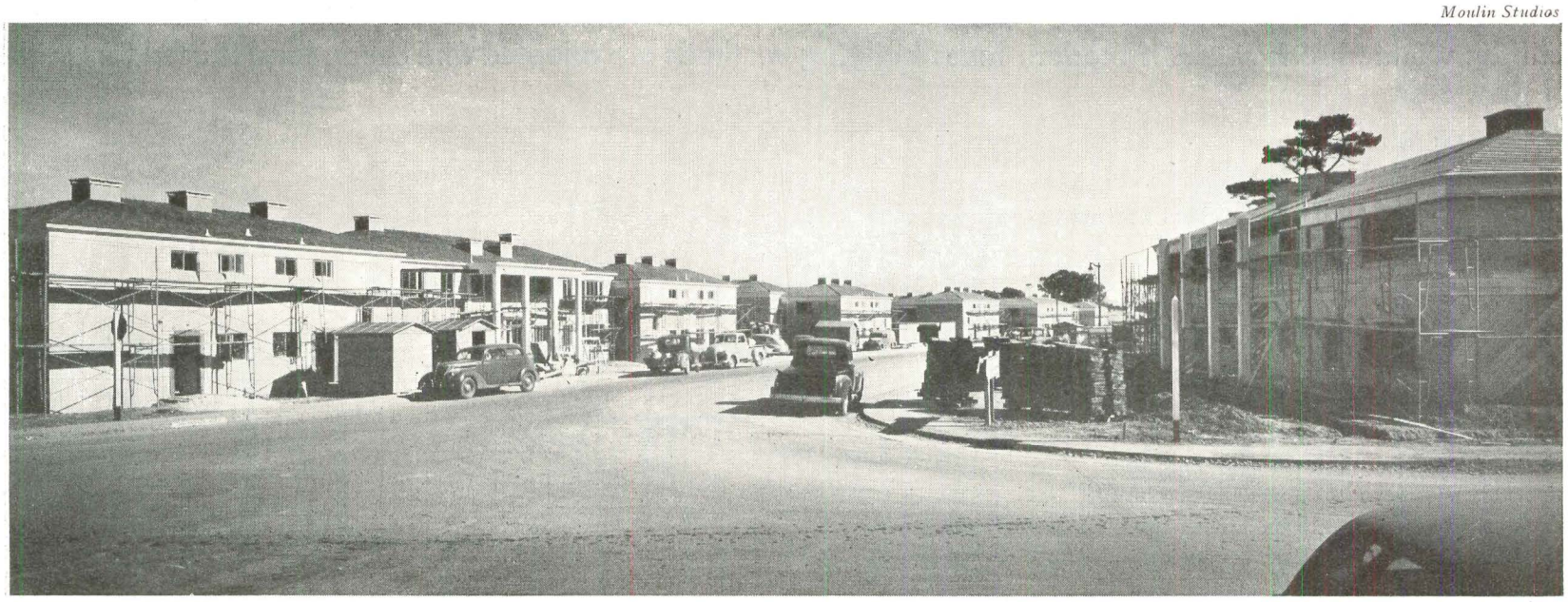






Bohannon's Hillsdale apartment group acts as buffer between shopping center and detached houses

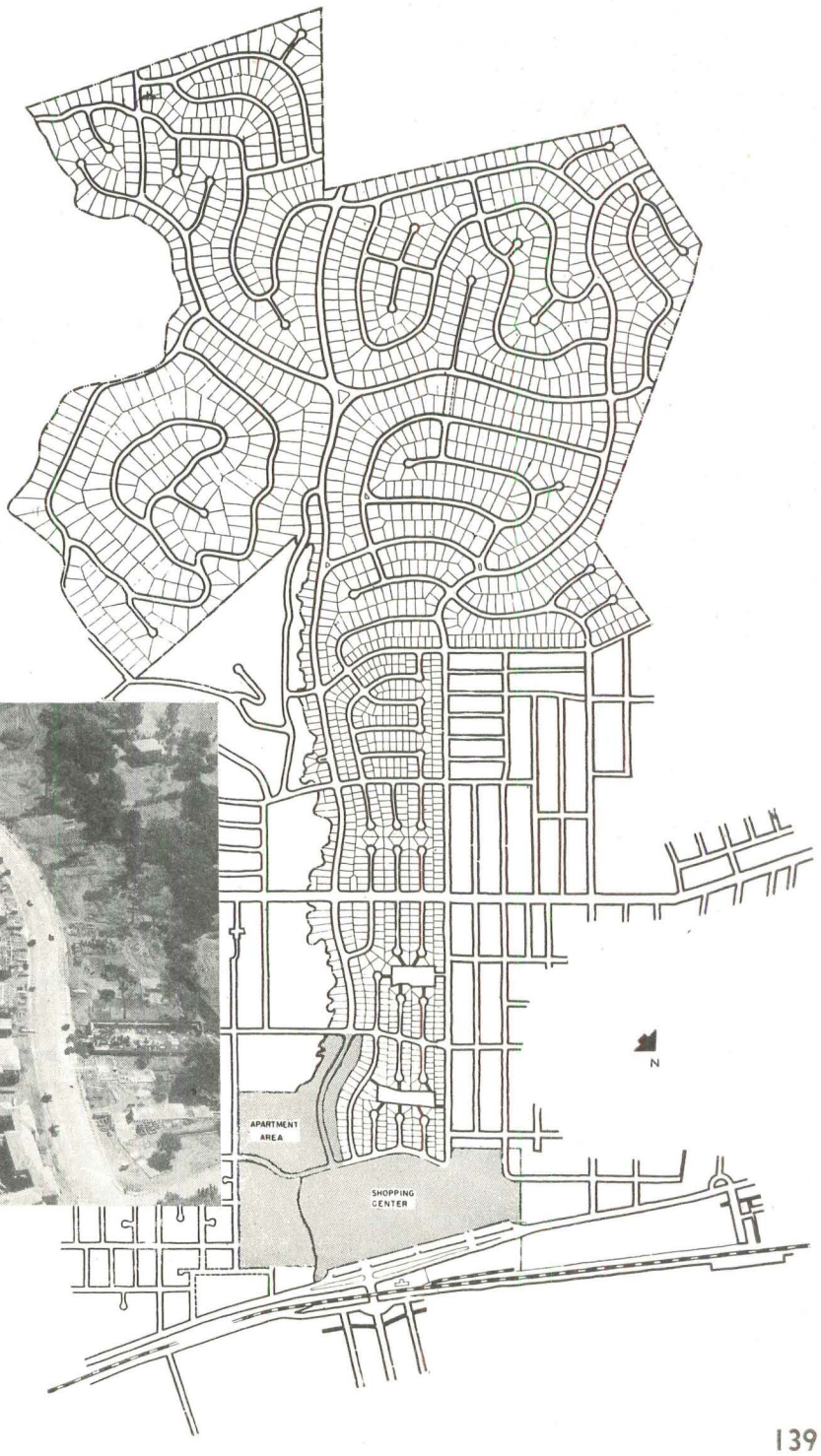
Moulin Studios



In Hillsdale, Bohannon's development plan provides for the construction of a major suburban shopping center, plus his 705-unit Title 608 rental housing unit, and between 2,000 and 3,000 single-family homes priced over $15,000. "Hillsdale Apartments" are near completion, and of the houses, 300 have already been built, a block of 150 are now under way, and an equal annual expansion is expected. A cheaper house has been contemplated, but none are yet under construction.

The site is a handsome one. The street plan (right) is true to the land rise, as the regular grid pattern curls up from the level to its ultimate development on the hills. Commercial, apartment and single-family areas are zoned strictly, with adequate off-street parking for the shopping area, and an ample number of apartment garages. The shopping center fronts on U. S. Highway 101, the main shuttle highway connecting San Francisco with the peninsula cities. Frontage on the highway is approximately 2,400 ft.

Another project of the Bohannon Organization is a 140 unit Title 608 rental apartment unit near the central business area in San Mateo. Start on this 11-story reinforced concrete building, named "DeSabla Apartments," was scheduled for spring.



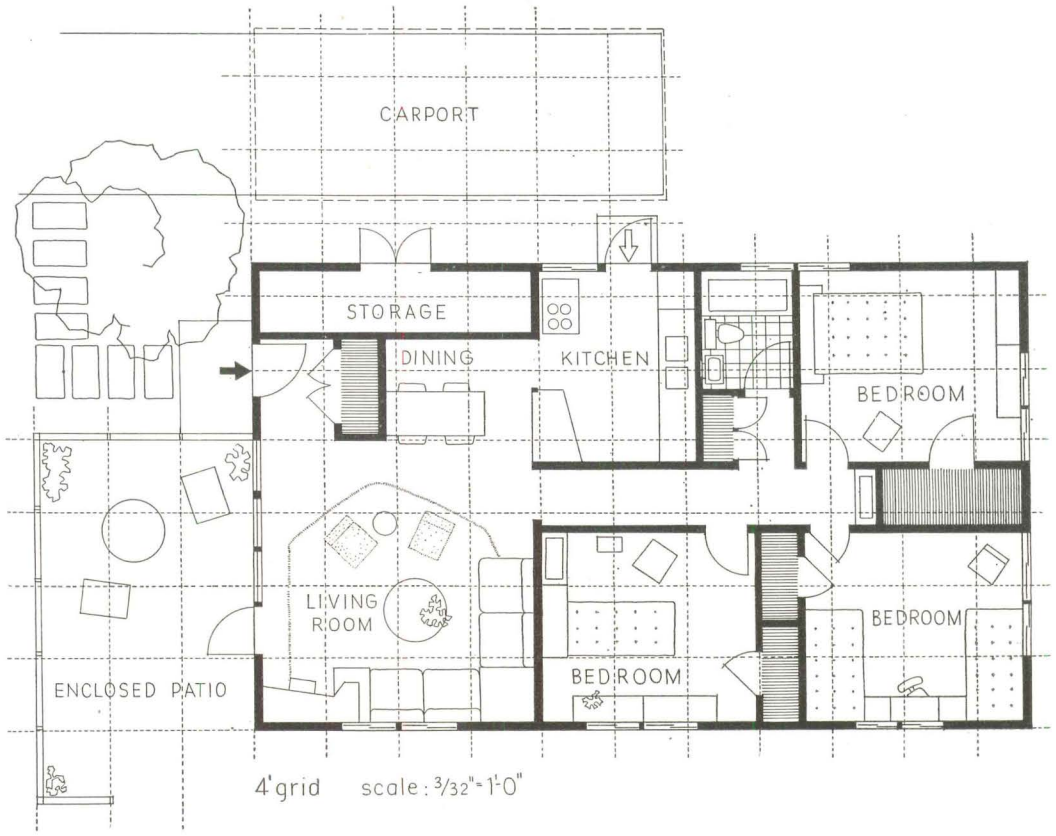
9. 3,000-UNIT DEVELOPMENT proves that excellent design can still be wedded to low cost if modern mass building methods are adopted and cheap land is used for a site

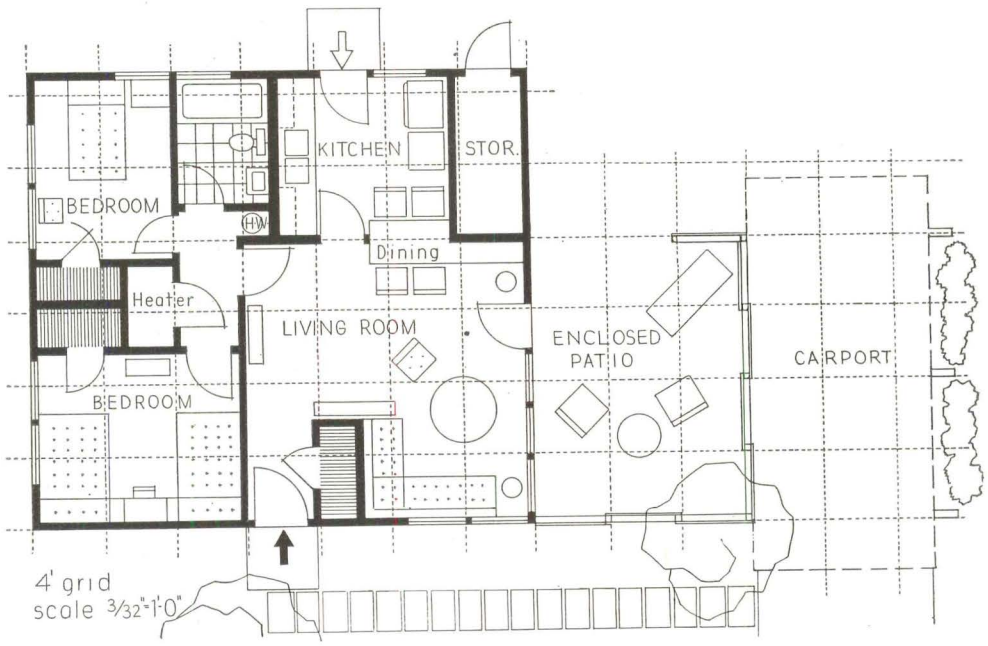
LOCATION: Tucson, Ariz.
BUILDER: Del E. Webb Construction Co.
ARCHITECTS: A. Quincy Jones & Paul Williams

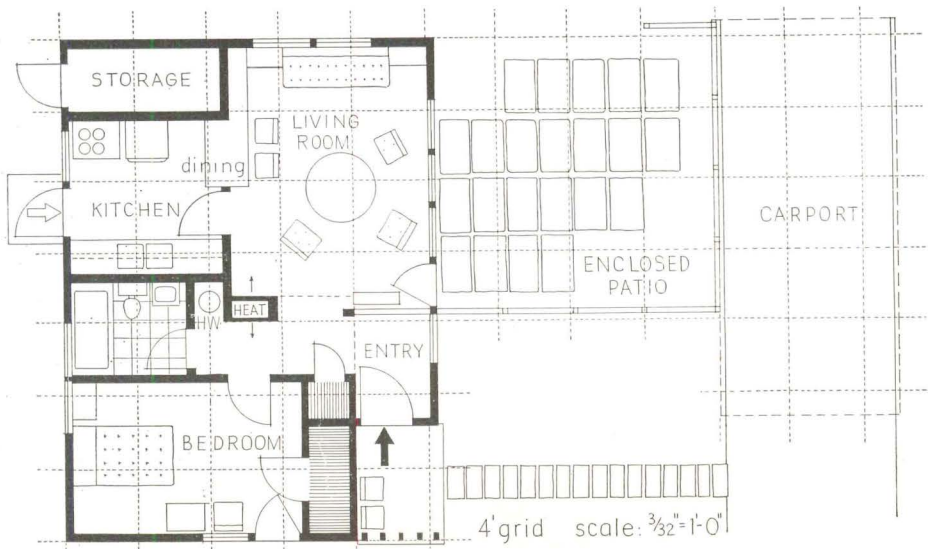
Del E. Webb, spectacular newcomer to the low cost housing market may well become the champion of the far west. In a city where individual home building has been the general rule, this ambitious entrepreneur has started a town-size, 3,000-house development which utilizes the assembly line construction techniques of the most efficient mass builder. But Del Webb is not content with adopting the methods of his predecessors. He intends to surpass them. Thus his current slogan: *"The Lowest Cost in the Nation for Quality Homes."* An examination of his product reveals that this statement may be fact rather than press agentry. The price range in Pueblo Gardens is $4,975 for a one-bedroom house, $5,975 for two-bedrooms and $7,975 for three-bedrooms, a record yet to be beaten even by the notorious Levitt (p. 84). And these houses are not the usual minimum box. They boast a living room window wall shielded by a fenced-in patio for private indoor-outdoor living, a carport, excellent plan and storage and such small amenities as a built-in eating counter between kitchen and living room.

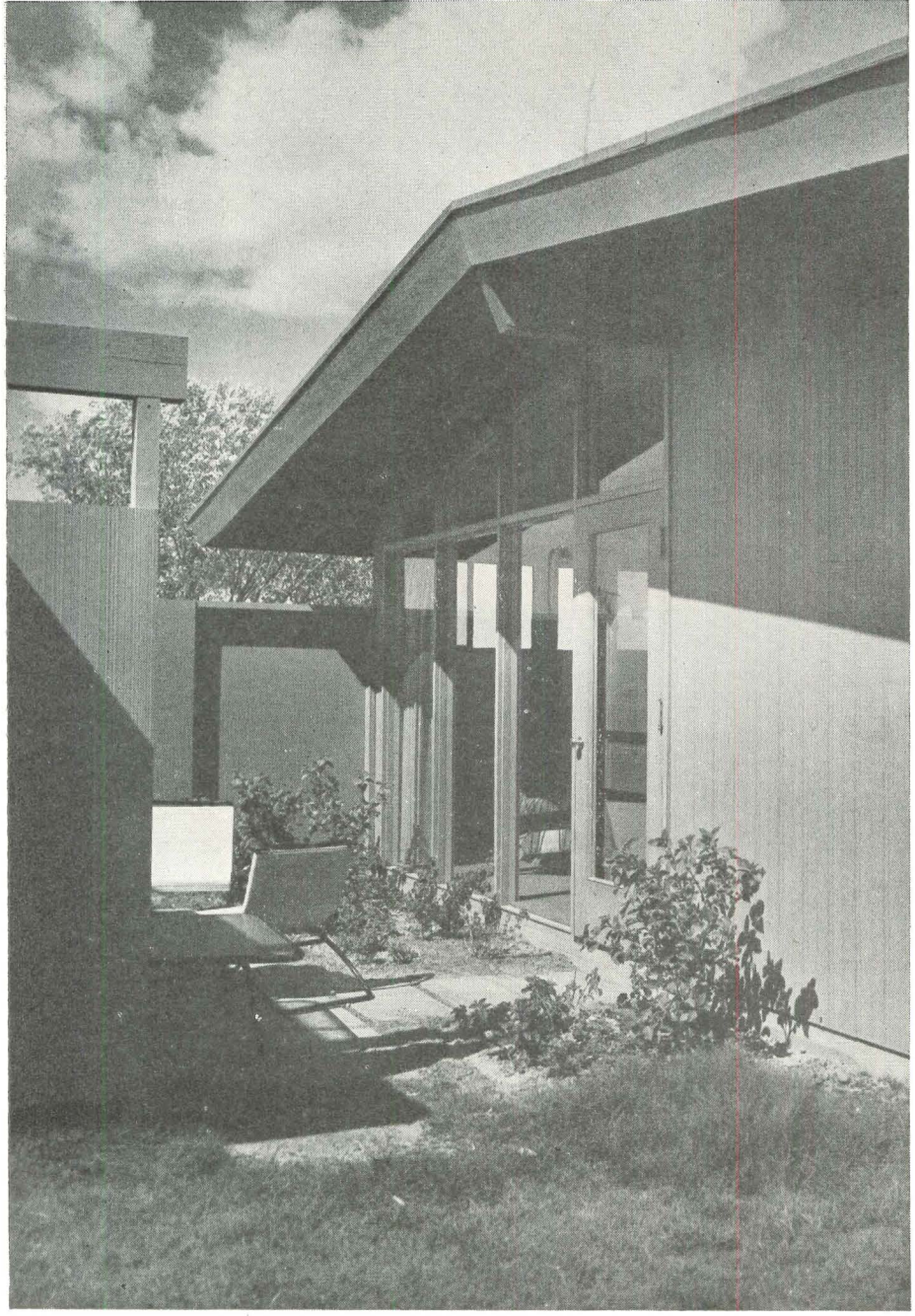
Many builders will feel that providing so much for the money is only possible because of construction short cuts suitable to the mild Arizona weather. But, surprisingly, these houses are equipped with in-wall heating systems ranging from 38,000 to 50,000 b.t.u. size, large enough to heat a small home even in a colder climate. In addition they are well insulated throughout. Wall insulation is aluminum-backed gypsum board. Roofs are sealed with a double vapor barrier wool batt insulation which reflects heat as well as slowing convection and conduction. The entire construction is sturdy and durable and quality materials such as redwood siding, stucco and combed plywood are used for exterior finish.

As all large developers should, Webb has realized the need for community facilities. With 700 houses to be finished by April 15, his next step will be the erection of schools, churches, a recreation and shopping center, the latter a unified island plan with periphery parking for 1,500 automobiles. Landscaping is also planned with a lavish hand. Five thousand eucalyptus

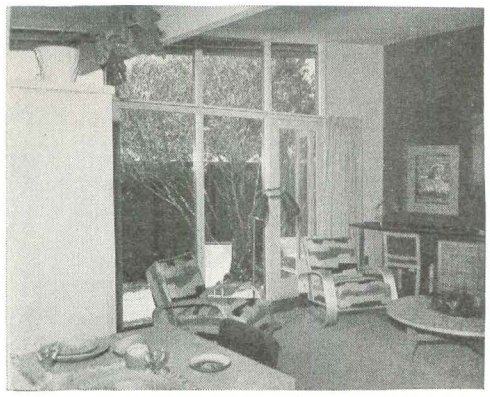




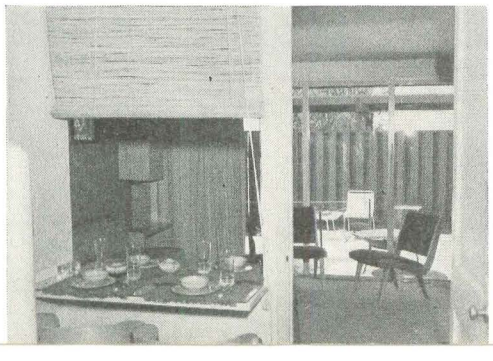


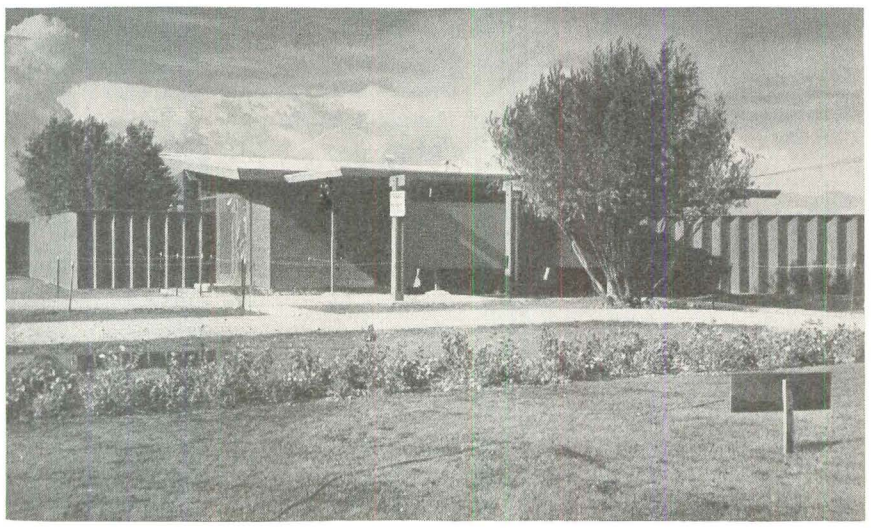


PATIO AND GLASS-WALLED LIVING ROOM OF $4,975 ONE-BEDROOM HOUSE

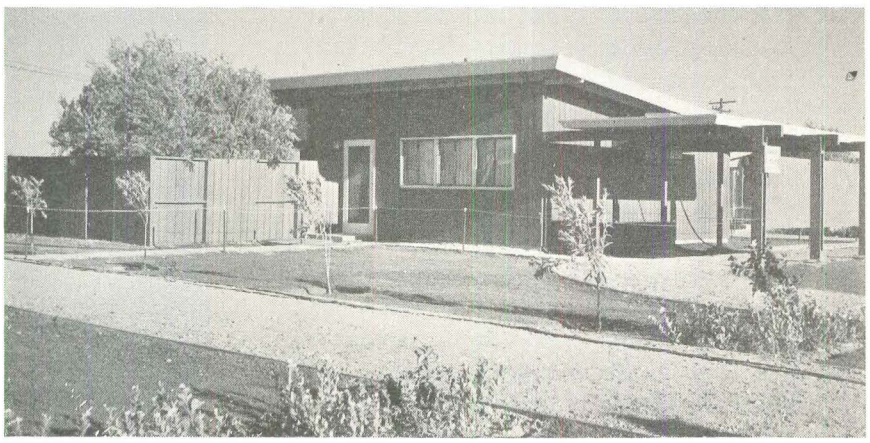


The patio fence provides privacy for occupants despite near neighbors. Smallest house (below) has dining bar between kitchen and living room. Larger houses are given separate dining alcove.





THREE-BEDROOM HOUSE WITH 1,092 SQ. FT. AREA COSTS $7,975



LARGE TWO-BEDROOM UNIT COSTS $6,975, SMALLER (BELOW) $5,975



Exterior finish of the houses is varied. Some are redwood siding, others combed plywood painted in bright desert colors, others brown stucco. Roofs are of washed gravel painted white like window and door trim. Largest house has enclosed laundry yard in addition to the patio.

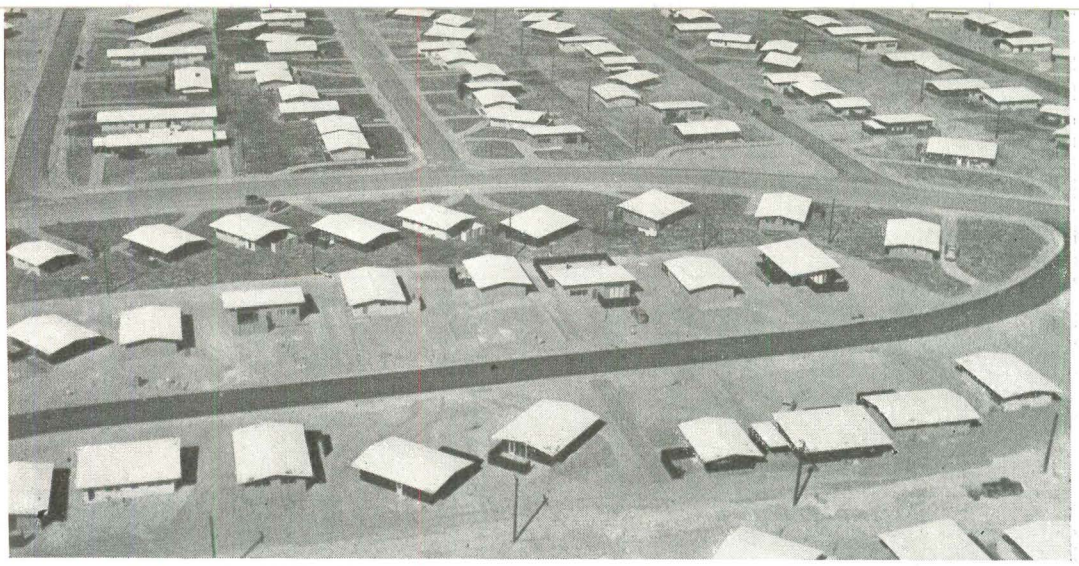
PROJECT NO. 9 cont'd

and olive trees will be scientifically placed to act as windbreaks and create a pattern of shade, while low oleander shrubs will control dust and air motion.

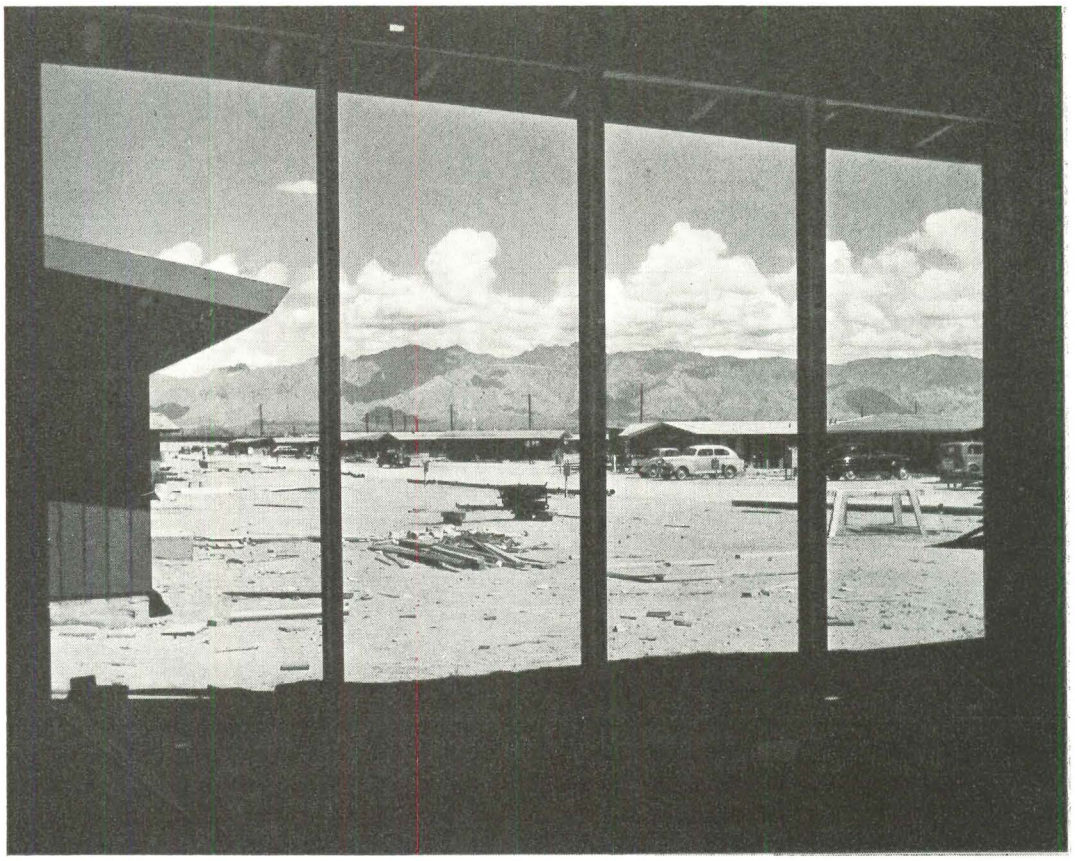
There are several reasons behind Webb's bargain building. First, of course, is the low cost of his land, a 260 acre tract of former desert southeast of Tucson proper. Second, because of the impressive scale of the project, the city agreed to provide natural gas, sewage service, power and bus transportation. By studying Tuscon's master plan, Webb was able to locate near a proposed highway which will serve the project. Third, is the familiar story of standard plans and assembly-line construction. An excellent architect team was chosen to work out a simplified design particularly suited to mass building. The costly roof truss and hip and valley framing were eliminated, and a roof framing system devised without horizontal members which permits gently sloping ceilings and non-bearing interior partitions, mostly door-height closets or screening.

Construction itself is geared to the rate of seven houses per day with different operations proceeding simultaneously in different houses. After clearing the site, a construction plant, warehouse, field offices, temporary structures for subcontractors, a cement batch plant and mill were erected. Laying out of streets and foundations began at once. As soon as footings were excavated by a jeep trencher, workmen followed with foundation forms, and the cement slab floors were then finished by mechanical spinners to eliminate hand troweling. Another crew had been precutting lumber and millwork so that it was ready for erection when needed. Frame templates were used to assemble entire wall panels and plumbing was pre-assembled at a site shop. Because each worker had his place on this field assembly line, doing the same job over and over with different operations preceding and following him, a continuous pace could be established. Thus, despite relatively high wage rates ($2.10 an hour for carpenters and cement finishers, $2 for roofers, $1.52 for truck drivers and $1.45 for unskilled workers), the cost of labor was held to a minimum.

CONSTRUCTION OUTLINE: Exterior walls —stucco or redwood exterior; inside—Sheetrock, U. S. Gypsum Co. INSULATION—Paraffine Co.'s., Gilman Bros. SHEET METAL WORK: Flashing—copper clad Sisalkraft, The Sisalkraft Co. Ducts—cement asbestos board, Johns-Manville Co. WINDOWS: Sash —steel, Truscon Steel Co. and Ceco Steel Products Co. Glass — Libbey-Owens-Ford Glass Co. HARDWARE—Schlage Lock Co. BATHROOM EQUIPMENT—Briggs Mfg. Co. HEATING—warm air furnace, Royal Heater Co. Water heater—Rheem Mfg. Co.

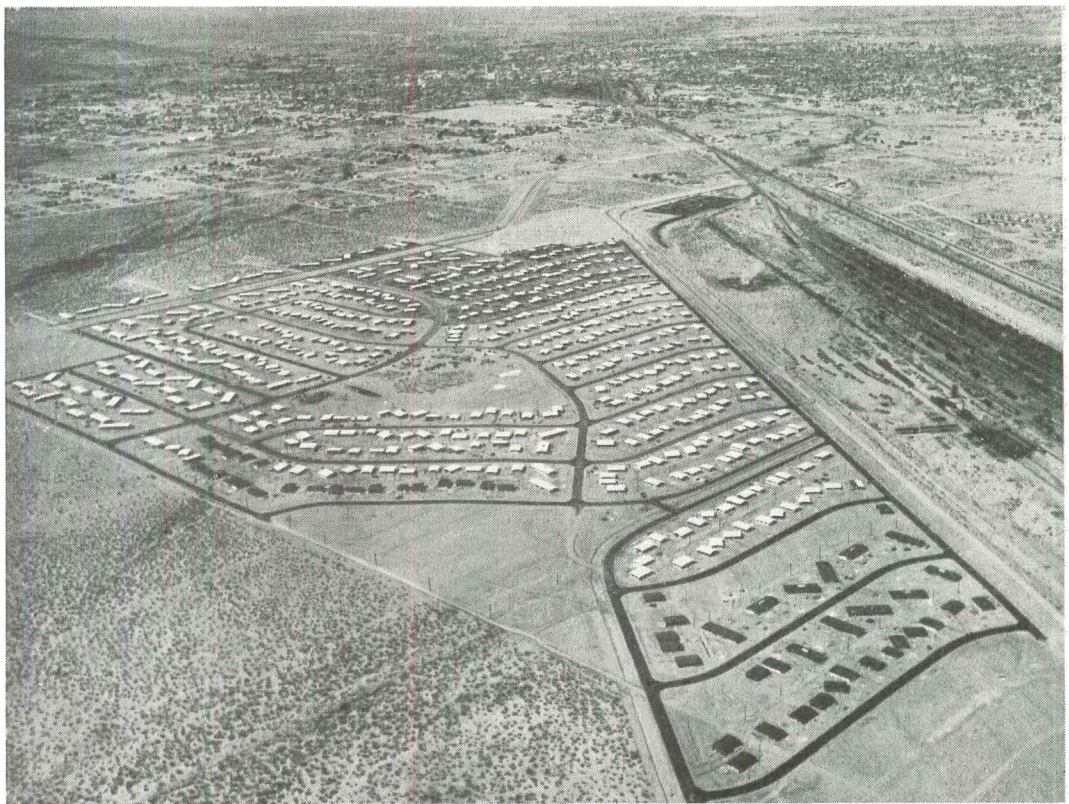


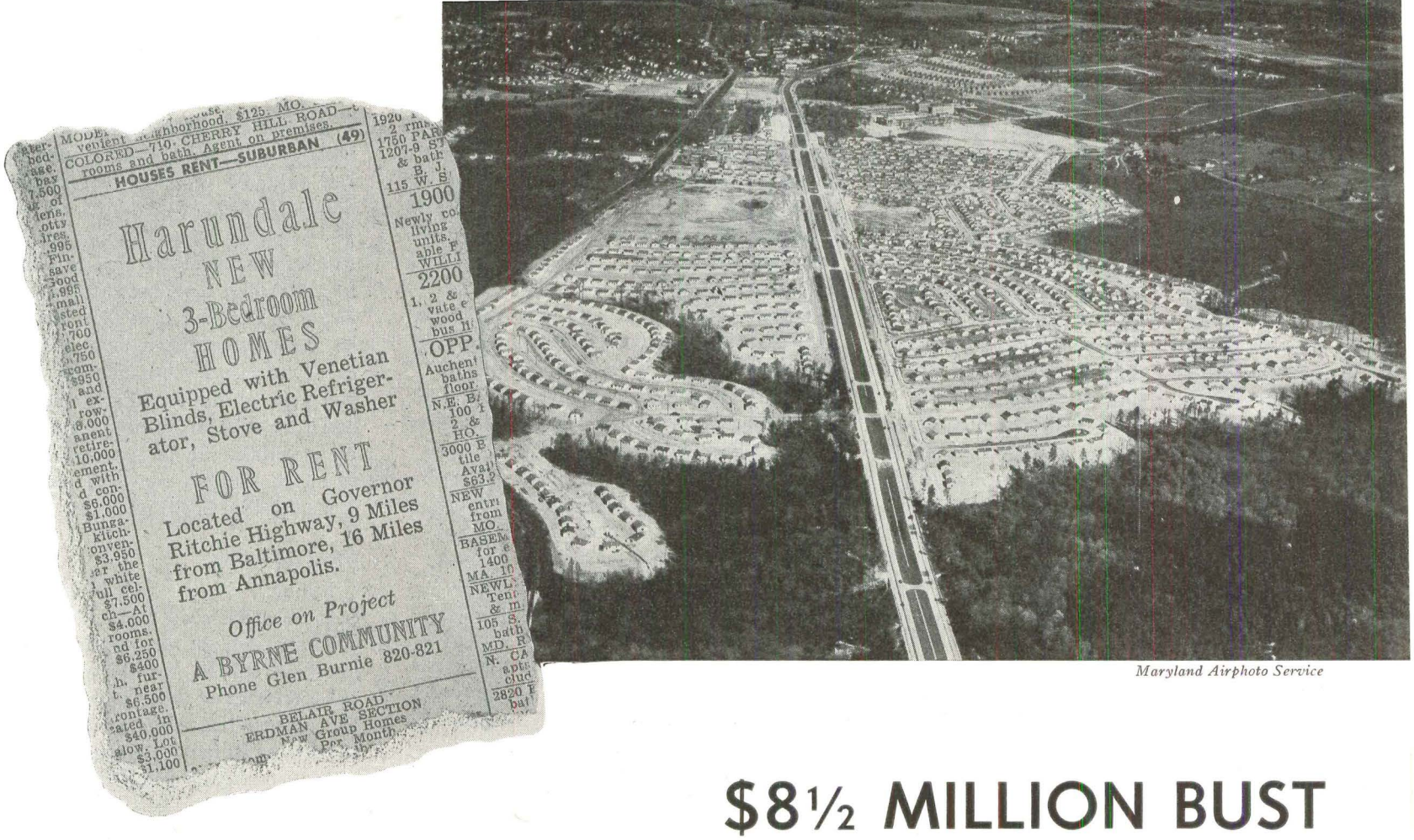
300 UNITS WILL BE KEPT FOR RENTAL INCLUDING TWO-FAMILY DUPLEXES (TOP LEFT)



LARGE GLASS AREAS EXPLOIT DRAMATIC VIEWS OF DISTANT MOUNTAINS AND DESERT

HOUSES ARE STAGGERED IN SUPERBLOCKS SURROUNDING THE CENTRAL SHOPPING AREA





Maryland Airphoto Service

$8½ MILLION BUST

"The builder who erects large-scale housing by mass production methods stands to lose his shirt"

A newcomer to Baltimore, following this ad over the Hanover Street Bridge and nine miles south along the Governor Richie Highway, might well have rubbed his eyes at the sight that awaited him. For here, on a treeless plain, laced by an occasional muddy strip once intended as park space, stood 1,018 little houses. One glance, sweeping the busy procession of baby carriages and small fry on one side of the highway, the curtainless windows and complete solitude on the other, would have told him that in this year of still substantial housing shortage nearly half of these trim new houses were standing vacant.

Almost anybody who lived in one of the 559 houses which *were* occupied could have told the inquiring newcomer the gist of the matter: "The guy who built this job started out all right but then he raised his prices too high." If the inquirer could have asked John Byrne, the builder of this giant housing development, what happened, he would have got this answer: "The builder who erects a large scale housing project by mass production methods stands to lose his shirt. We've come to the conclusion that the mass builder, because of the many non-productive costs he must shoulder, can't beat the small fellow."

Since Jack Byrne is the head of a building organization which, over the last 17 years, has built large garden apartments in Texas, factories, $325 million worth of Naval air bases in the Pacific Islands and a 1,342-unit war housing project at Norfolk, housebuilders all over the U. S. blinked when Byrne's flat statement appeared in newspapers a few weeks ago. Had not the whole industry looked for a decade at the operations of Levitt, Gross-Morton, Burns, Bohannon, etc. as not only the way to good profits, but also the way to cut house costs—the only way of opening up the big potential market that means stable high-level housebuilding, year-in and year-out? Had all this been merely a legend? Did the top dozen or so housebuilders who had conspicuously not lost their shirts possess some private kind of magic, not accessible to the large rank and file of builders who hoped to do likewise?

When Byrne started building Harundale in the late winter of 1947, a rough summary of his assets would have indicated that he had almost everything that it might take. There was, in the first place, no question about his construction know-how. Moreover, he had been studying the problem of low-cost housebuilding since 1932, and he had developed what he thought was the answer: a light steel framing system which he had tested both in apartment house building and in the Norfolk war project and believed to be ideally adapted to assembly line fabrication at the building site. And he had what many a hopeful contender for the golden mantle of Levitt had signally lacked: an $8½ million pool of construction money, advanced with unparalled fluidity by Allied Building Credits, to pay for advance purchase of materials and the vast amount of equipment needed for setting up what amounted to a factory on the building site. A more careful scrutiny of Byrne's impressive record, however, would have shown that, while he had done almost every kind of building, while he had sold lots in Texas subdivisions and built 100-unit apartment projects on his own account, while he had turned in an outstanding performance record on one of the biggest government war housing jobs and done other contract housebuilding—he had never before ventured into the special area of the merchant housebuilder. This is the tricky job of building a large number of houses at once and of taking the risk that these houses can be sold at prices above their construction cost.

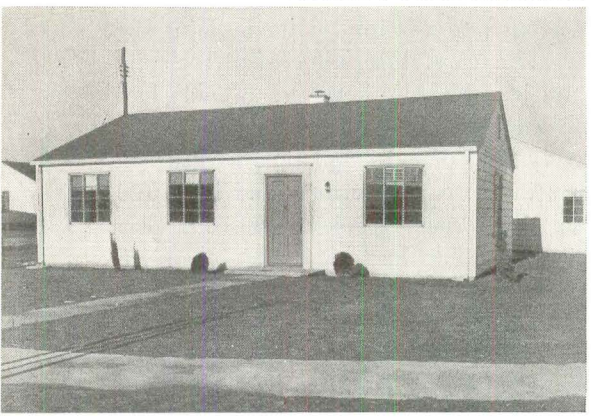
Byrne went to the Maryland FHA office in 1947 with plans for a 608-rental project on the Harundale site; he said he could get rents down to $75. But FHA wouldn't go higher than a $60 rent, and Byrne put his plans back in his pocket. Then he figured out a detached house job. The houses were, of course, to be steel-framed, and he told FHA that he could sell them for around

$5,500. FHA (or so, at any rate, it now recalls) was somewhat doubtful of the realism of this price figure, but was impressed by the quality easily apparent in the Byrne specifications and gave him a tentative commitment covering 1,200 units.

FHA, which housebuilders sometimes find painfully sensitive to neighborhood considerations and the trend of city growth, might have raised some questions about the location of the Byrne project had it not been for the low price figure he quoted. Harundale is not on the "class" or north side of Baltimore, the side where a builder with his eye on a sure market likes to pick up a bargain piece of property. There is nothing really wrong with the south side (except for the part affected by the smells from a big fertilizer plant on the Patapsco River), but the north side is generally better looking and easier to reach. (It takes a half-hour to cover the 9 miles between Harundale and downtown Baltimore, largely because of traffic jams on the only bridge connecting the south side and downtown). But FHA was mindful of the substantial industrial development southward—Bethlehem Steel's new Fairfield shipyard is an example—and believed that Byrne would have no trouble selling his houses if he hit anywhere near the low price tag at which he was aiming. Since other moderate priced jobs adjacent to Harundale show 100 per cent sales, there seems no reason to believe that location alone was a decisive factor in the disaster of the 299-acre Byrne project.

By the time Byrne had set up nine Quonset-type shops and installed the jigs and welding guns which would enable him to assemble large sections of his steel-framed house therein, the price tag that showed on his FHA application had jumped to $6,750 for a 3-bedroom house and to $6,400 for a 2-bedroom (only 200 of these were built). By the time Byrne was operating the 56 trucks, the giant cranes and flat-bed trailers required to move a completely preassembled roof and entire wall sections to the house foundation, his price tags had jumped to $7,450 and $6,600. Altogether, he went to FHA six times for approval of price boosts. When his 3-bedroom house reached a $9,750 price, there were no longer any customers—and this figure, Byrne said, did not allow one cent for profit. The factors back of this price rise were various and sometimes confused, but, contrary to Byrne's opinion, they do not add up to a demonstration that there is anything inherently wrong with large-scale housebuilding. Most of them do suggest that there was a lot wrong with Byrne's particular system.

Van Kan Pictorial Illustrations, Inc.



BYRNE HOUSE completely lacked sex appeal, said other volume builders, although great quality was hidden in its steel construction.

Byrne (or, more exactly, Allied Building Credits, a wholly owned subsidiary of Transamerica Corp., the Gianinni bank holding company curently the object of anti-trust investigation) had staked $8½ millions on the theory that a relatively expensive method of welded steel construction could produce low-cost houses if applied on a big enough scale. About half of his theory proved to be correct. The factory-like shop operations, which preassembled major parts, produced plumbing and heating subassemblies and wired all wall sections, proceeded smoothly. After an initial period in which workers learned their standardized operations, man hours dropped sharply and practically all shop operations stayed close to estimated cost, on the basis of 207 hours per house.

But the cost-cutting realized by shop fabrication didn't stick. Says Byrne:

"We could fabricate a roof on the assembly line for less than it could be done in the field, but the cost of getting that roof from the assembly line to the house site ate up all the savings. We had to have a huge crane to lift the roof from the assembly line to the truck, and another one at the site to move it from the truck to the house. Each crane required an operator, an oiler and a rigger. And if we had a muddy day, they'd stand around idle at full pay."

Volume Boomerang

Byrne originally estimated 797 hours of site labor per house. Actual site hours were about 1,200. Byrne blames most of the trouble on low productivity of labor (and there is considerable evidence of this, including a shift from non-union to union labor in the middle of the job). Wage increases totaling 39 per cent added their own boost to the cost increase implicit in the lengthened site hours. But perhaps a secondary factor was the site workers' unfamiliarity with the operations required to fit the preassembled sections together. Any builder who has introduced a crew trained in conventional building to the slightest innovation in construction methods will have some notion of what must have happened on the Byrne job.

Byrne had plenty of other troubles—most of them unexpected results of what had initially promised to be big cost-savers. Materials buying was one of these. As everybody knows, volume purchase of materials is one of the ways in which mass housebuilding is supposed to pay off. But Byrne was buying in a short market, and he had to stockpile a more than normal supply to ensure continuous operation. He had none of Bill Levitt's big warehouses, and extra stockpiling meant extra handling of materials. It also meant additional financial charges on the construction money tied up in the stockpile.

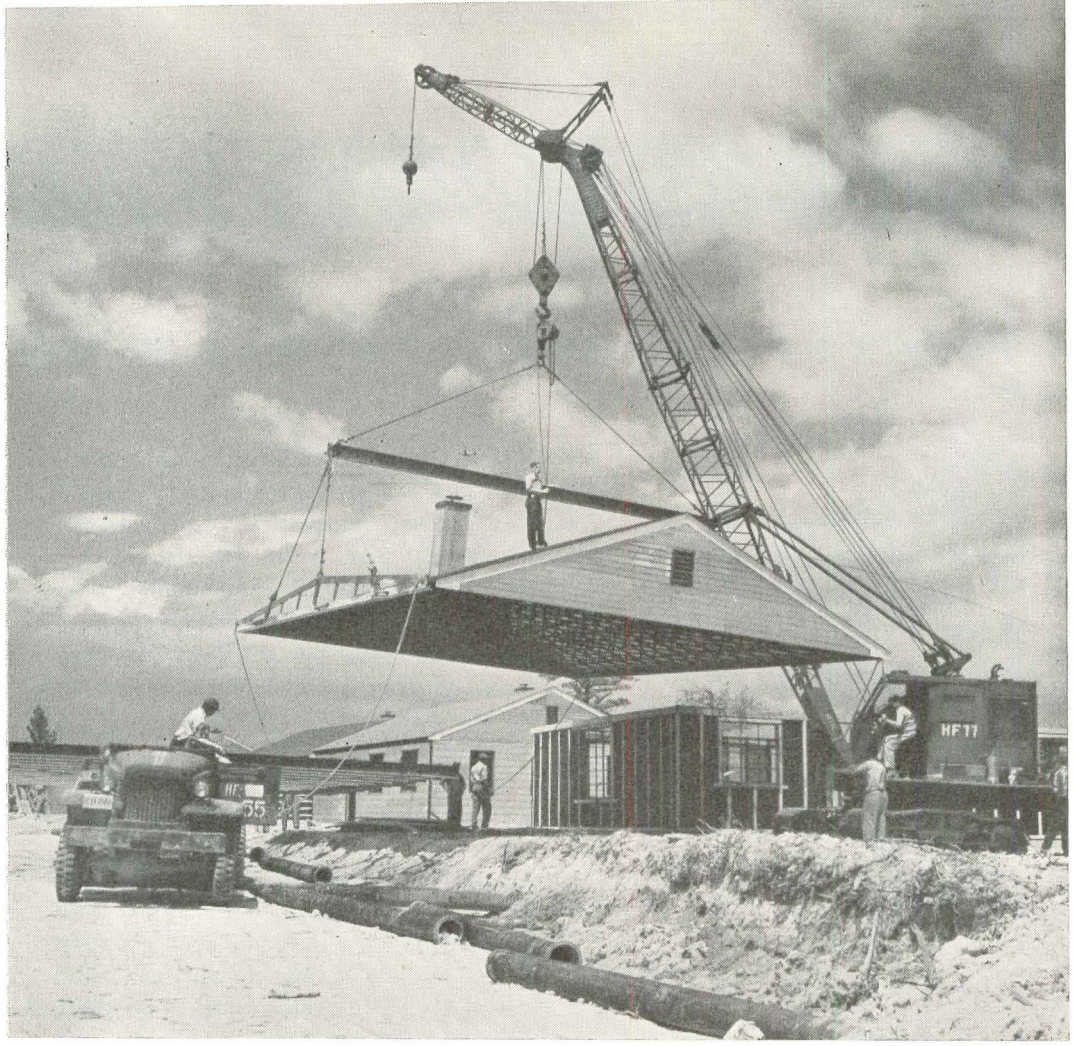
$45,000 Delay

Initially, Byrne had been especially proud that his shop fabrication of copper coils had reduced the installed cost of the hot water radiant heating system to $425, or scarcely more than the cost of a forced air system. But, although heat tests had showed the radiant system up to FHA standards, home buyers' complaints at one point brought a six-week halt in FHA clearance of insurance applications. This stoppage alone boosted financing charges by $45,000. Oil burners were another heating headache—Byrne had to replace 350 of them.

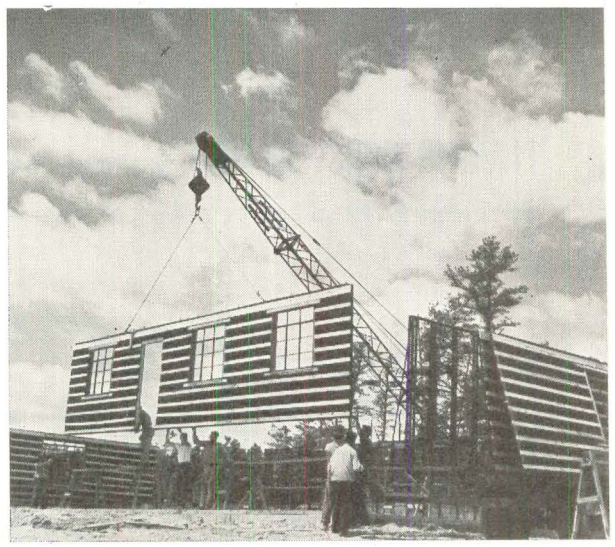
Land and land development added another $1,600 to the cost of Byrne's house. He feels that the FHA development requirements are more appropriate to a luxury neighborhood than to a low-cost housing development. While a number of housebuilders would enthusiastically second his opinion, it must be pointed out that these FHA requirements are a constant factor and had not stopped other builders.

Considered as a $6,000 or even an $8,000 house, there is no reason to believe that Byrne's sturdily built house lacked market appeal. It had 988 sq. ft., the come-on of radiant heating, big windows, separate storage and utility rooms, plenty of closet space. Although all houses were sited in line, the curved-street site plan was a good one and there was considerable variety of exterior finish. (An interesting small item of unexpected cost was Byrne's use of pastel colors in painting some of the houses; customers didn't care for the pastels and 120 houses had to be repainted white.) But when the price jumped higher, market appeal met a sterner test. Says Byrne: "We're convinced that you can't sell 1,000 houses for $10,000, or even $8,500, in one locality today without difficulty unless there's an urgent need for them."

Byrne had had no experience in the landlord-like troubles of the volume builder, and maintenance was another cost item he had not counted on. In the first month after houses were occupied, he got 1,000 service calls.



William Noyes



What Byrne saved in shop fabrication of massive steel parts was eaten up by the heavy cranes and trucks necessary to move and erect them on the site.

If service calls are still heavy, it's Allied Building Credits who is answering them now. For Allied, which put 20 per cent of its total investment over the country during a two year period into Harundale, took over the 574 unsold houses. By last month, it had rented 115 of them at $87.50. Allied hopes that it might be able to bring these houses on the sales market again in three to five years. Allied's only other hope of bailing out is building the big shopping center (p. 162) projected in Byrne's original plan. When house sales stopped, shopping center leases also lost their market appeal, and Byrne was unable to go ahead with this part of the development. Allied has renewed lease negotations on the basis of its house rental arrangements.

It was Allied's shirt

While Allied would just as soon not talk about the whole sad affair, its own opinion indicts neither volume housebuilding nor Byrne's management but merely the specific method of construction. Said Harland Keller, Allied vice-president: "The design and construction of the houses in the area we built were not warranted. There is no doubt that the houses are excellent and better than many selling for more money in other places. We are sure, for example, that a housing project of this kind on the north side of Baltimore would have worked out well. On the south side, it did not. Steel construction is not necessary in low cost development and its use is only justified where it can be built at unit construction costs as low as wooden."

While the moral of the Byrne story would seem to be that a fabrication system based on large steel components that require expensive machinery for erection is not an economic one, even this pat conclusion needs to be examined from a wider perspective. It is reasonable to suppose that one of the decisive factors in Harundale's failure—the runaway cost of site assembly—might have been considerably reduced had Byrne been able to set up proper methods of training and supervision and to transfer once-trained crews and machinery in a continuous operation on other big projects. But this point is a fairly academic one, for here one runs into the inexorably local nature of the housebuilding operation. Byrne's other big jobs were not in Baltimore but in the Middle West and he discovered that transporting machinery—to say nothing of workers—simply did not pay.

Although none of them is burdened with the heavy machinery overhead required by Byrne's steel system, it is certainly no accident that the great mass housebuilding operations have grown up around the big population centers on the East and West Coasts. An apparently inexhaustible market keeps Levitt's trained crews busy year in and year out, his purchase orders continuously moving and his warehouses full. Yet there are signs that the market in general is not as inexhaustible as it once seemed.

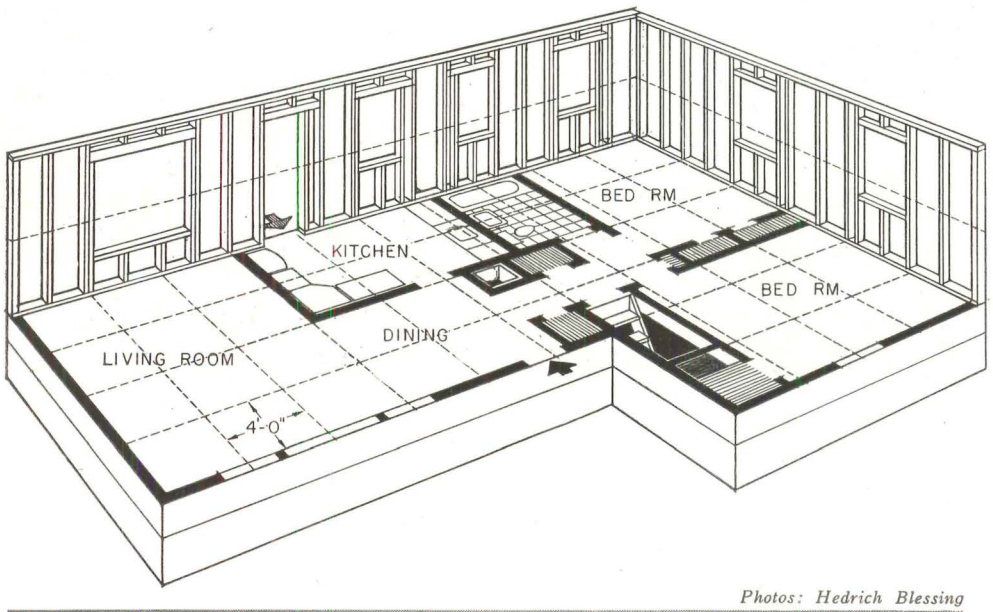
Byrne's point on the limit to the price people will pay to live in a neighborhood of 1,000 basically identical houses is one which all the volume builders are now obliged to consider very seriously. Levitt's new $7,990 house, which boasts one of the best plans yet seen in low-cost volume building (see page 84) is one indication that they are doing so. But a good plan and a belated relinquishment of Cape Cod are not the whole answer.

Diversification of the mass house development by the addition of small apartment units might be another. Another answer might be establishing the point at which the law of diminishing returns begins to apply to volume housebuilding, and—while this would be extremely difficult to do—there is as much reason to believe that it might as well be 200 houses as 1,000.

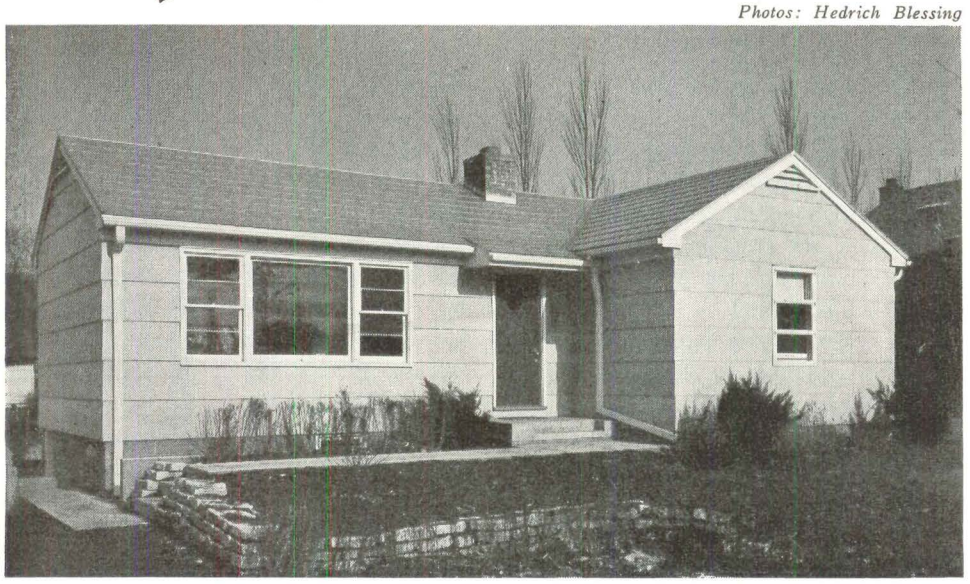
These considerations open up interesting and controversial vistas, but there is at least one moral plainly written in Jack Byrne's venture into operative housebuilding which no experienced housebuilder is likely to contest. Construction know-how is not enough: in fact, a construction method that makes sense in the high seas of contract building may wreck an enterprise entirely in the treacherous shoals and uncertain weather of the low-cost house market. To survive in this uneasy field, a top-notch builder must combine something of the sales finesse of an R. H. Macy and the financial acumen of a J. P. Morgan.

(Supplementary data: pp. 158 and 162)

PLANNED CONSTRUCTION in Illinois University demonstration shows average house builder how to cut costs. The "Industry Engineered House" pays a 10 per cent dividend



Photos: Hedrich Blessing



TEST HOUSE was built prior to six-house demonstration to gain experience in use of modular plan and framing system (see drawing). It was finished with experimental aluminum roof and cement asbestos panel siding. In actual demonstration (below) walls were framed horizontally and tilted into place.

Small Homes Council



When the Small Homes Council of the University of Illinois started building a set of six "Industry Engineered" small houses at Urbana last year, it was with the question in mind: how important is planning to the small house builder? When the six houses were finished, the Council had in its thick books of time studies and cost sheets an answer: planning can save ten cents on a building dollar.

Backed by a grant from the U. S. Department of Commerce Office of Technical Services, and advised by the Producers' Council, the Small Homes Council constructed the six houses by twos, one masonry, one frame, employing the same contractor for all houses to stabilize comparisons. For the plans, the Institute turned to architect Gordon Lorimer's 811 sq. ft. modular house designed for the National Retail Lumber Dealers Association. The study was limited to assembly methods, with no rating or testing of materials. On the first two houses the contractor used methods of construction customary to most small home builders. On the second pair, started after the first two were under way, the contractor was guided by methods worked out by the Small Homes Council. The third pair of houses was built using precut lumber, truss roofs and other methods further developed and perfected in use on the second pair. All techniques applied to the final pair of specimen houses were limited to those which could be used by the small operator. No special tools were used, nor was mass production or mass buying the source of the economies charted for the last houses.

Complete tabulation of studies showed that improvements and refinements in assembly made the final pair of houses 10 per cent cheaper to build than the first pair, which had been put up with commonplace techniques (see summary, p. 147).

Build it on paper

J. T. Lendrum, who with G. C. Rettburg, ran the program for the University commented after results were published, "Most of the savings which we made were worked out first on paper. It is very easy to erase a line and change the wall framing or the wallboard layout or trim assembly when it is still a drawing. Architects have long campaigned for complete drawings, but few architects of our acquaintance make draw-

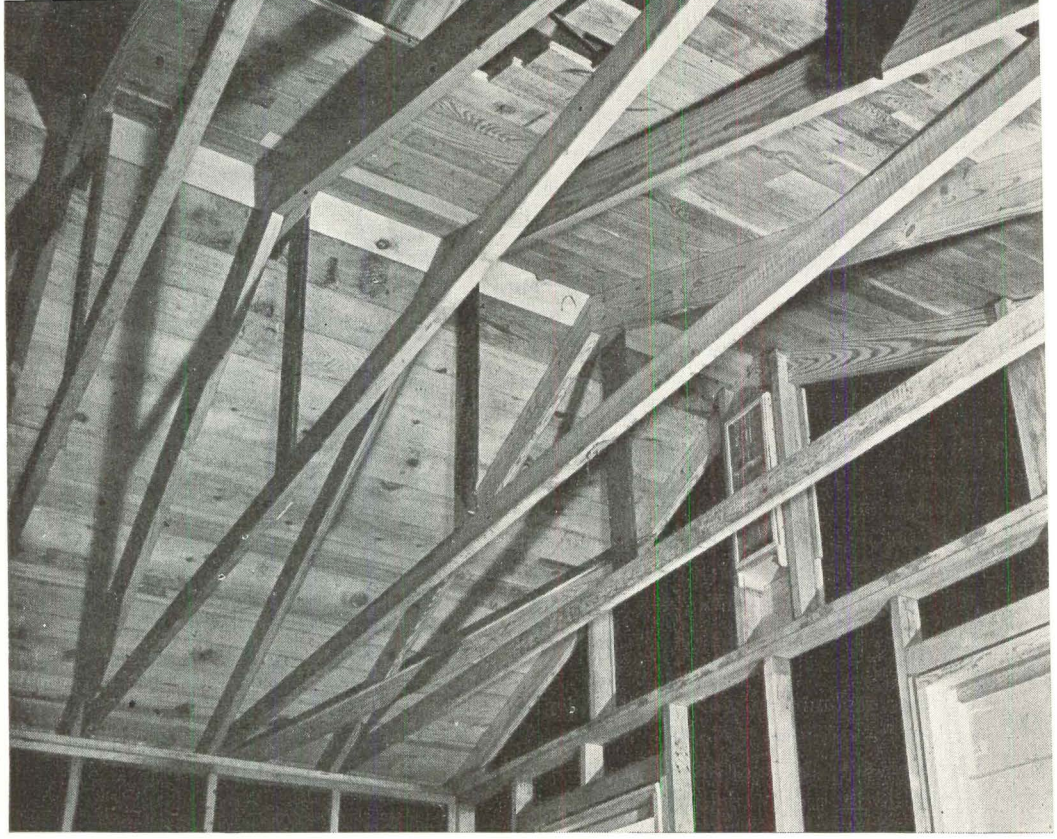
ings as complete as we found necessary in the establishment of new construction techniques. As the 'one room' or 'open room' house assembly with roof trusses (this, together with precut lumber are the essentials of our recommendation) becomes more common, carpenters may not require these detailed drawings. My personal feeling, however, is that you will always be able to save time and money by solving on the drafting table the problems which are to be met as the house is assembled."

The module system employed was based on the common 4 in. unit, used in designing in multiples of four or twelve. The unit of measurement for masonry products was, as usual, 4 in., while the smallest unit for insulation board, wallboard, and other sheet material was 4 ft.

Truss up the roof

Order of work was to complete walls on the floor, tip them up into place, and then complete the roofing. This was practical because of the truss construction which eliminated bearing partitions. As soon as the roof was in place and while the carpenters were installing such parts as cornice, gutter, and siding on the exterior, the plumber and electrician went to work on the inside. When the carpenters went back in, there were no other trades on the job. Advantages cited for truss construction include pre-assembly to save labor costs, and rapid erection, with roof protection for inside finishing relatively early in the job. Truss roofs eliminated the possibility of using the space between ceiling and roof for future rooms, but these houses were designed for first floor expansion. And the truss roofs allowed the use of light-weight, non-bearing interior partitions or storage walls, permitting flexibility in room arrangement.

The three masonry houses were built with a cavity-type exterior wall consisting of a 4 in. layer of brick, a 2 in. air space, and a 4 in. inner wall of concrete block (picture, right). Because the walls in the masonry houses were plastered before interior partitions were placed, savings in plastering were obtained. Another saving enabled by prior planning was the glazing and painting of the steel sash windows before they were installed. In the frame house, where wood was the exterior wall material,



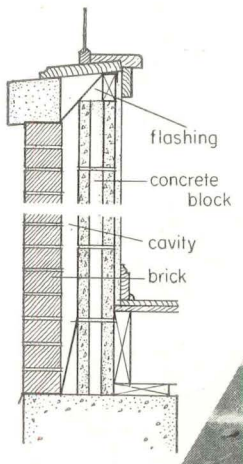
ROOF TRUSSES and gable ends were fabricated on the ground, placed on the plates upside down, then rotated into position. Economical in itself, this trussed roof construction set off a long chain reaction of additional economies. However, maximum economy of truss construction cannot be exploited in a house where framing is complicated by an L-shaped plan.

SAVINGS THROUGH ENGINEERED CONSTRUCTION

Operations	Items included	Man-hours, conventional methods	Man-hours, engineered methods†	Man-hours saved	Man-hour savings in per cent	Savings in total labor on job in per cent	Savings in total cost* in per cent
FOUNDATION AND FLOOR	Excavation, footings, foundation, basement floor, floor joist and sub-floor	256.75	231.19	25.56	10	1.2	0.6
EXTERIOR WALL	Structural framing and sheathing	262.32	217.80	44.52	18	2.1	1.0
ROOF	Roof trusses, gable ends, roof boards, and roofing and cornice	374.88	276.62	98.26	26	4.7	2.2
INTERIOR	Flooring, wall and ceiling material, interior partitions	412.01	251.00	161.01	38	7.8	3.6
MILLWORK	Trim, cabinets, windows, painting	534.39	440.48	93.91	18	4.5	2.1
MECHANICAL	Plumbing Heating Wiring	80.30 42.97 40.25	54.60 48.34 53.05	25.70 - 5.37 - 12.80	32 - 12 - 31	1.2 - 0.2 - 0.6	0.7 - 0.1 - 0.3
MISCEL-LANEOUS	Not included in any of the above groups	75.05	67.19	7.86	10	0.3	0.2
TOTALS FOR ENTIRE HOUSE		2,078.92	1,640.27	438.65	21	21.0	10.0

(†) An average of the houses built by engineered methods
(*) Material and labor; no allowance for contractor's overhead or profit

Modular masonry cavity wall

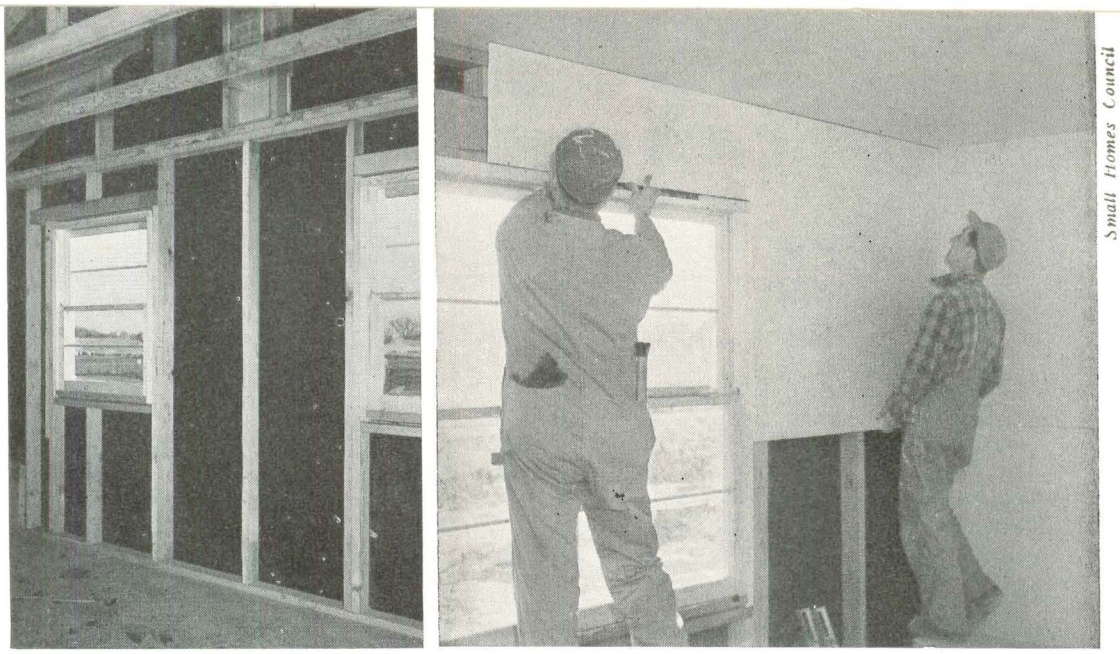


the siding was painted before application, and metal corners were used to reduce labor costs. The local building code was deliberately violated in this test house in the stud spacing; 2 ft. o.c. was used instead of the 16 in. spacing requirement.

Recommendation for precutting was based on this set of advantages: a slight reduction in time of sawing on the job; a sizeable reduction in the amount of idle labor time; elimination of responsibility on the part of the workmen to design framing; and improvement in the framing, since the cutting list required that the framing be studied.

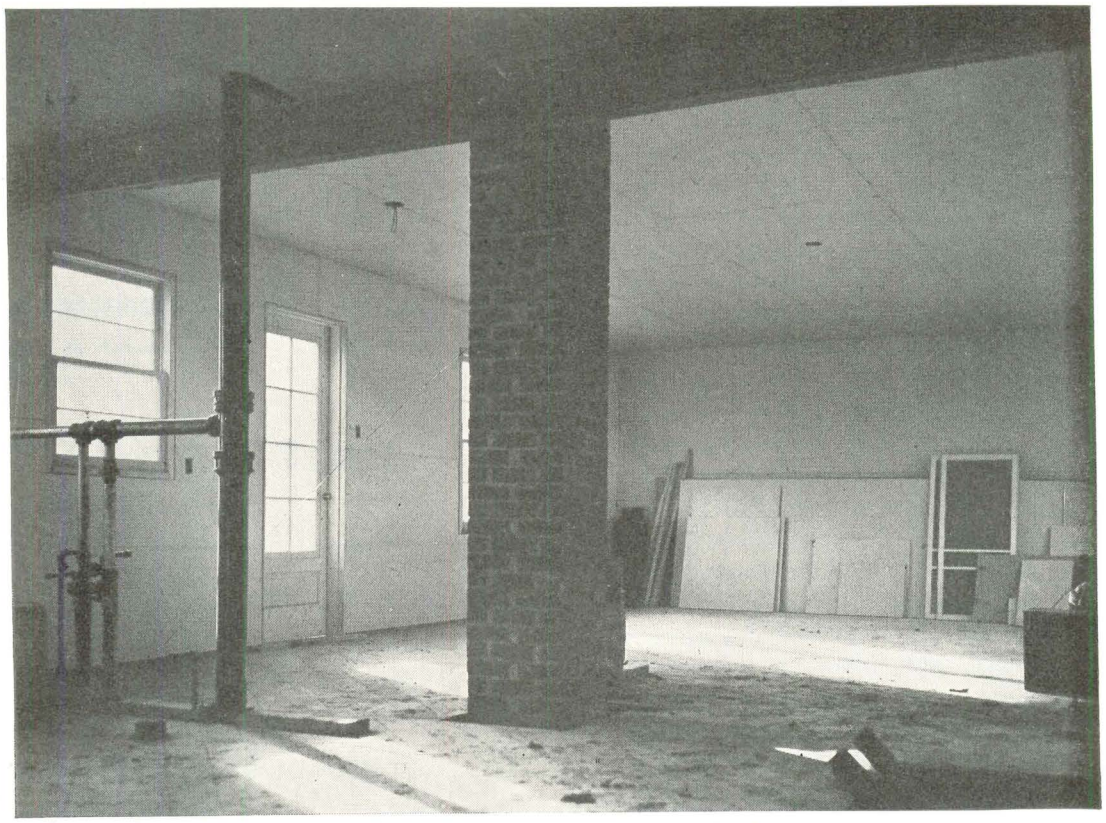
Four steps to savings

Other recommendations ranged from an order of excavation to the use of a portable electric saw to cut sub-floors—and are available in greater detail in publications of the Small Homes Council. But, the major elements of the advice which came out of the study, aimed at the builder of the small house, are summarized in these four points: 1) cut all material from schedules, rather than from field measurements; 2) use roof trusses and pre-assembled gable ends, with installation of ceiling, exterior walls, and flooring before interior partitions are erected; 3) use tip-up procedure on both exterior and interior walls; and 4) use a complete set of plans and working drawings, made to take advantage of every saving from modular or coordinated dimensional control of materials. Lendrum acknowledges that the study might at first inspection be called a criticism of small house architecture as it is practiced today, but points out the rewards of following the Small Homes Council's recommendations: "The carpenter-contractor need not be an expert draftsman in order to organize his framing and assembly, and every hour that he spends planning the work will return profits to him and savings to the buyer."

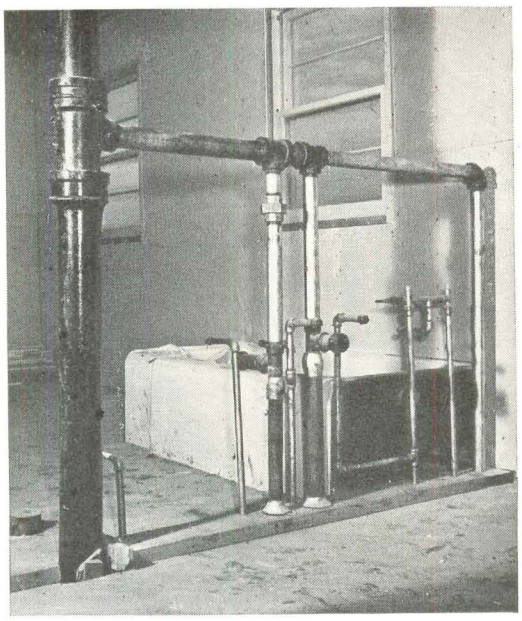


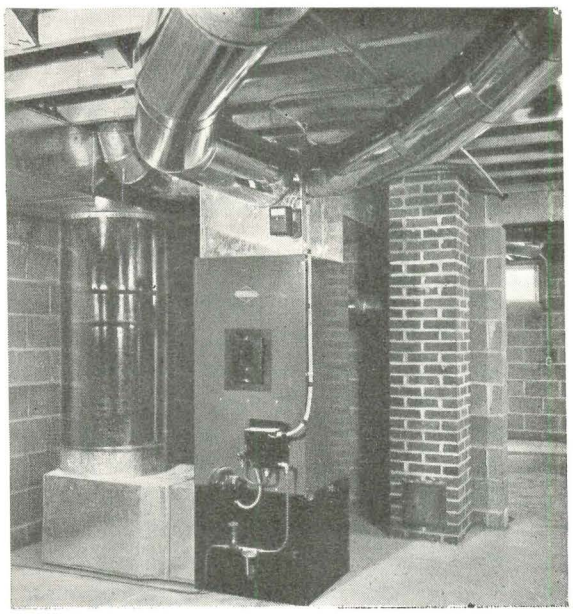
Small Homes Council

STUDDING spaced 2 ft. on center simplified the application of 4 x 8 ft. sheets of plaster board and minimized waste of this material. Absence of partitions facilitated this operation. Note, however, that use of non-modular windows (left) required extra framing members.



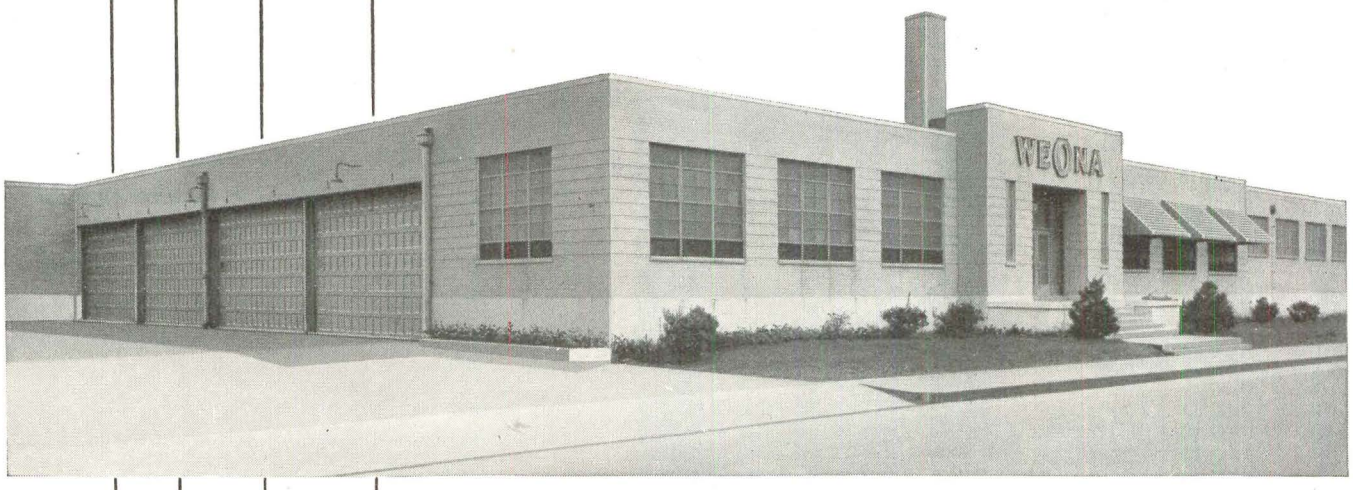
ONE BIG ROOM results when walls and ceiling are dry finished. At this stage partitions were framed on the floor and tilted up. To avoid ceiling damage, they were made a fraction of an inch short and then wedged in place. Millwork was painted prior to installation.





UTILITIES in the Engineered House were neatly packaged. The simple plumbing tree serves the back-to-back kitchen and bathroom; the warm-air heating plant is located in the basement beneath the living room. Note the use of old-fashioned, but economical, circular ducts.

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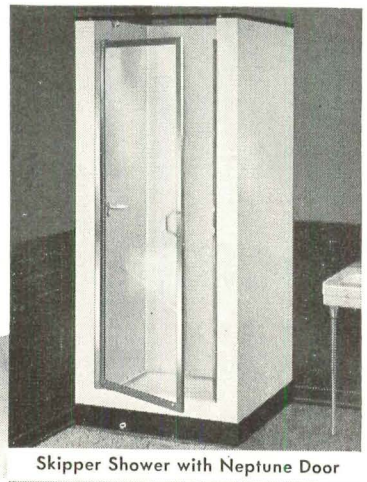
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— make the menfolk happy and are a source of pride to the housewife.
— are in harmony with other modern features in the home that make for easy living.
— add an air of distinction and luxury to the bathroom even when lower priced units are installed.

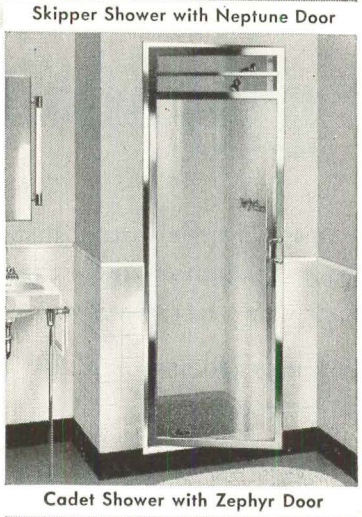
— THERE IS A FIAT SHOWER MODEL TO FIT EVERY BATHROOM —

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— the medium priced Cadet Shower with Zephyr Door.
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Commodore — 2000-C

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to sell at $6,650. Lex Marsh, Charlotte, N. C., builder, has plans for 250 homes, the majority of which will retail in the $6,000-$8,500 bracket. I. Norris Blake, Richmond developer, has scheduled up to 150 houses at prices ranging from $6,250 to $7,500.

Even northern and western builders expect to offer some homes within this range. The Economy house is still in the future, but builders are creeping up on it, despite costs which make their operations anything but economical.

QUESTION: Please compare your anticipated building operations for 1949 with those of 1948.

	more	less	same
a. Do you expect to build more, less, or the same **number of houses** this year as compared with last?	47%	43%	10%
b. Do you expect the average **sq. ft. per house** to be more, less or the same this year as compared with last?	7%	62%	31%
c. Do you expect the average **selling price** to be more, less, or the same this year as compared with last?	9%	73%	18%

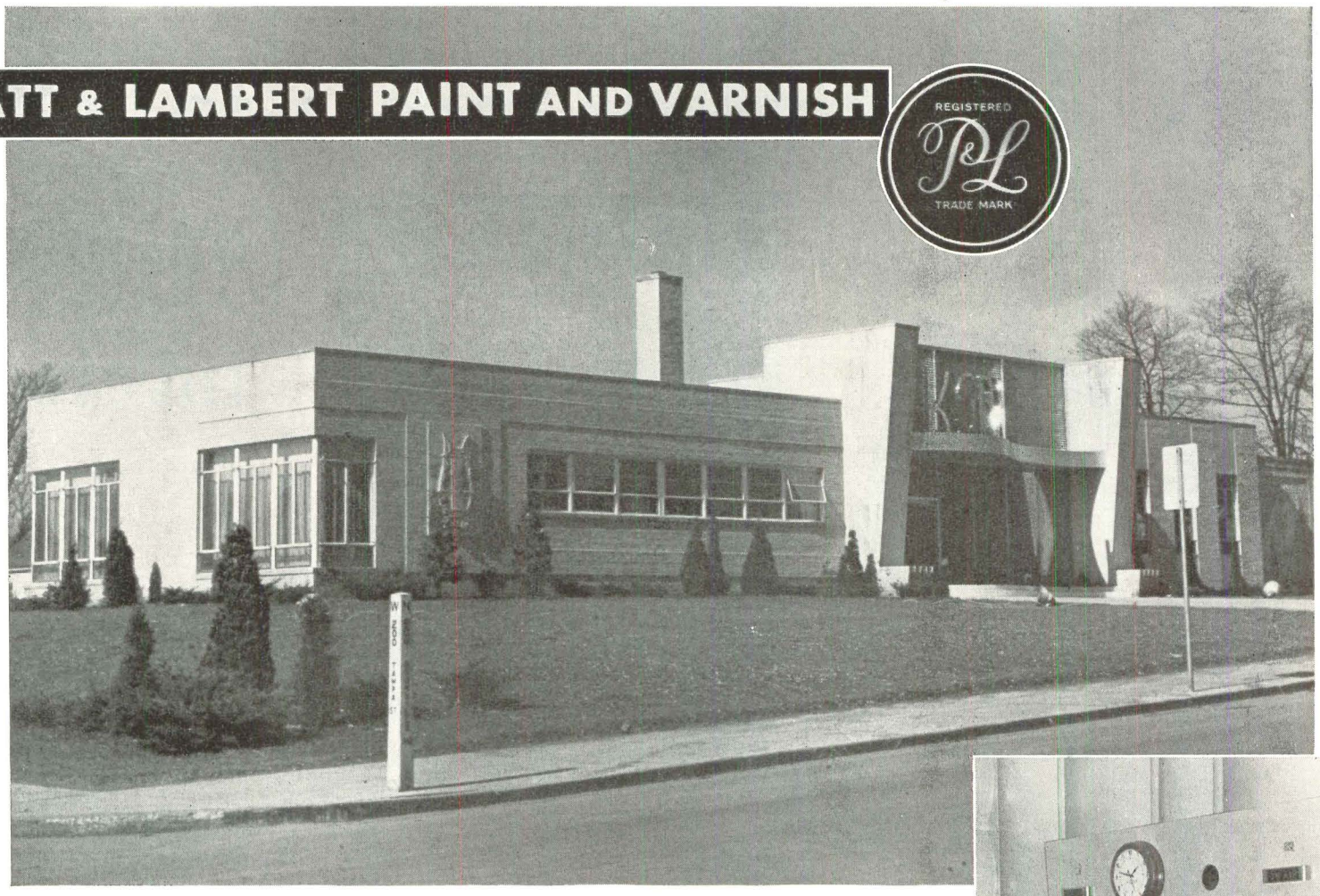
FORUM's question on building plans for 1949 shows clearly that the industry is moving into a period of smaller units and lower prices, and that this is the chief factor in the decision of a majority of builders to construct as many or more units this year as last.

How *much* smaller will the average 1949 house be, and for how *much* less will it sell? In general, builders are willing to approach FHA minimum space standards in order to build at a price which will enable them to hold their market. (Only 13 per cent thought these standards were too low.) For many developers, however, two bedroom units are the absolute minimum. Walter Bollenbacher and Louis L. Kelton, whose Allied Contractors, Inc., are currently building 530 homes in Los Angeles, have reduced their floor plans from last year's 1,050 sq. ft. to 800, which they consider the bottom limit. In other cases the drop is more precipitous. N. P. Bengston, of Los Angeles, reduced his area from 1,700 sq. ft. to 1,000, and more than halved his price. Some contractors were dropping to 700 sq. ft. and a few to 650.

Not in every instance has the cut in price resulted solely from the design of a smaller unit. Better labor productivity and other construction economies have helped. Sidney Kleefeld, of Los Angeles, lopped $500 off the price of his houses while retaining the same size floor plan. Hesselden Building Co. of Albuquerque trimmed $250 off their 800 sq. ft. homes. But developers were agreed that not much more than this could be saved without reducing the size, or else cheapening the quality to the point of unsaleability. Replied more than one contractor, who had reached the minimum in size and still found his houses out of the reach of many who wanted to buy: "Where do we go from here?" *(Continued on page 154)*

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RADIO Station KGBX, owned and operated by the Springfield Broadcasting Company of Springfield, Missouri, houses the business, promotion, station manager's offices and news room in one wing. In the opposite wing are the studios, control room, transcription library, lounge, continuity and program departments.

The building is lighted throughout with recessed fluorescent fixtures; completely air-conditioned and insulated. Windows are Thermopane glass. Ceilings are acoustical tile. Sound diffusers, built of white pine plywood, on the studio walls, provide clarity of tone and prevent echoes.

Constructed of cream-colored brick, the building is trimmed with aluminum and Arkansas limestone. The panel immediately behind the station letters over the entrance is corrugated structural glass, which, illuminated at night from behind with four changing colors, forms a spectacular background for the letters KGBX.

Pratt & Lambert Paint and Varnish, used on the exterior and interior surfaces of Station KGBX, add the appropriate, decorative touch to this interesting structure. The Pratt & Lambert Architectural Service Department offers similar co-operation to all interested in authoritative decoration.

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In overall size 24″ x 20″, this square-basin Case fixture is a perfect companion for the Camel or the T/N closet. Has ample shelf space, built-in soap dish, anti-splash rim and chromium-plated brass trim. Wall hung or with chrome legs or china pedestal.

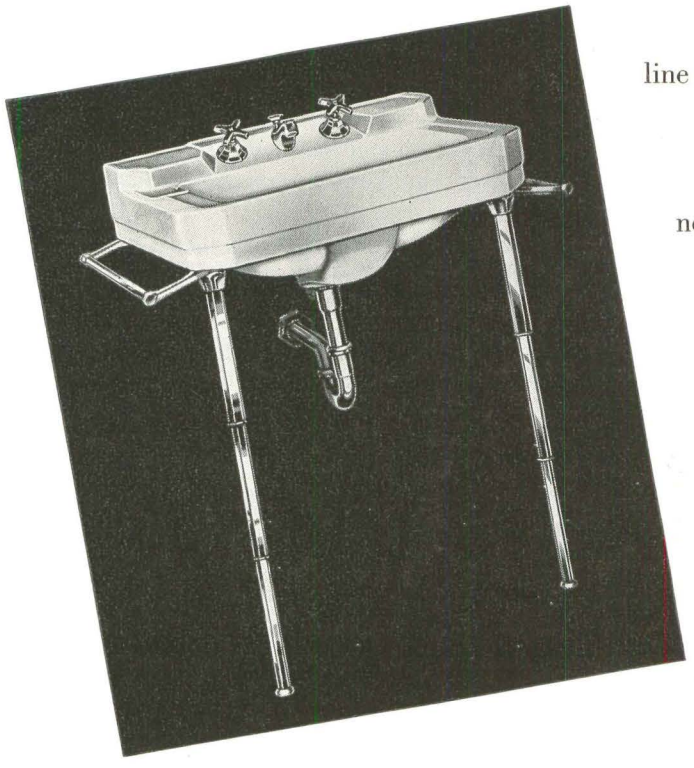
THE FAMOUS ONE-PIECE CASE T/N*—*Right*
For years the most popular water closet in America, this is a quiet, free-standing fixture with unusually strong flushing action and positive *non-overflow.* Its 19″ overall height provides exceptional flexibility of placement. Lifts any bathroom out of the "ordinary."

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THE NEW WILLARD LAVATORY — *Above*

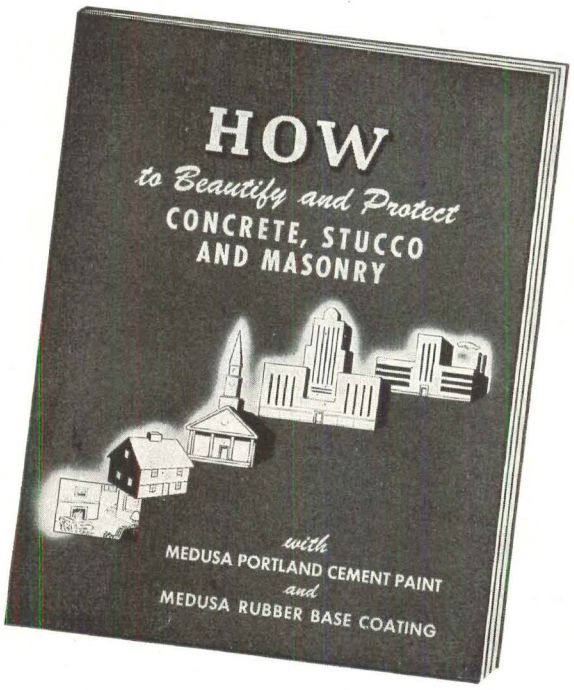
A brand new Case design, already popular with architects and home-owners. This is a "dry shelf" lavatory; anti-splash rim and placement of supply fittings on a beveled panel keep water off the lavatory surface. Concealed front overflow, adjustable legs. Towel bars optional.

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QUESTION: What do you consider the most important contribution to cost reduction that builders can make in 1949?

Barring a slump in the national economy as a whole, contractors look forward to no radical drop in the cost of labor and supplies. And with houses about as small as they can get, where will the cost reductions come from?

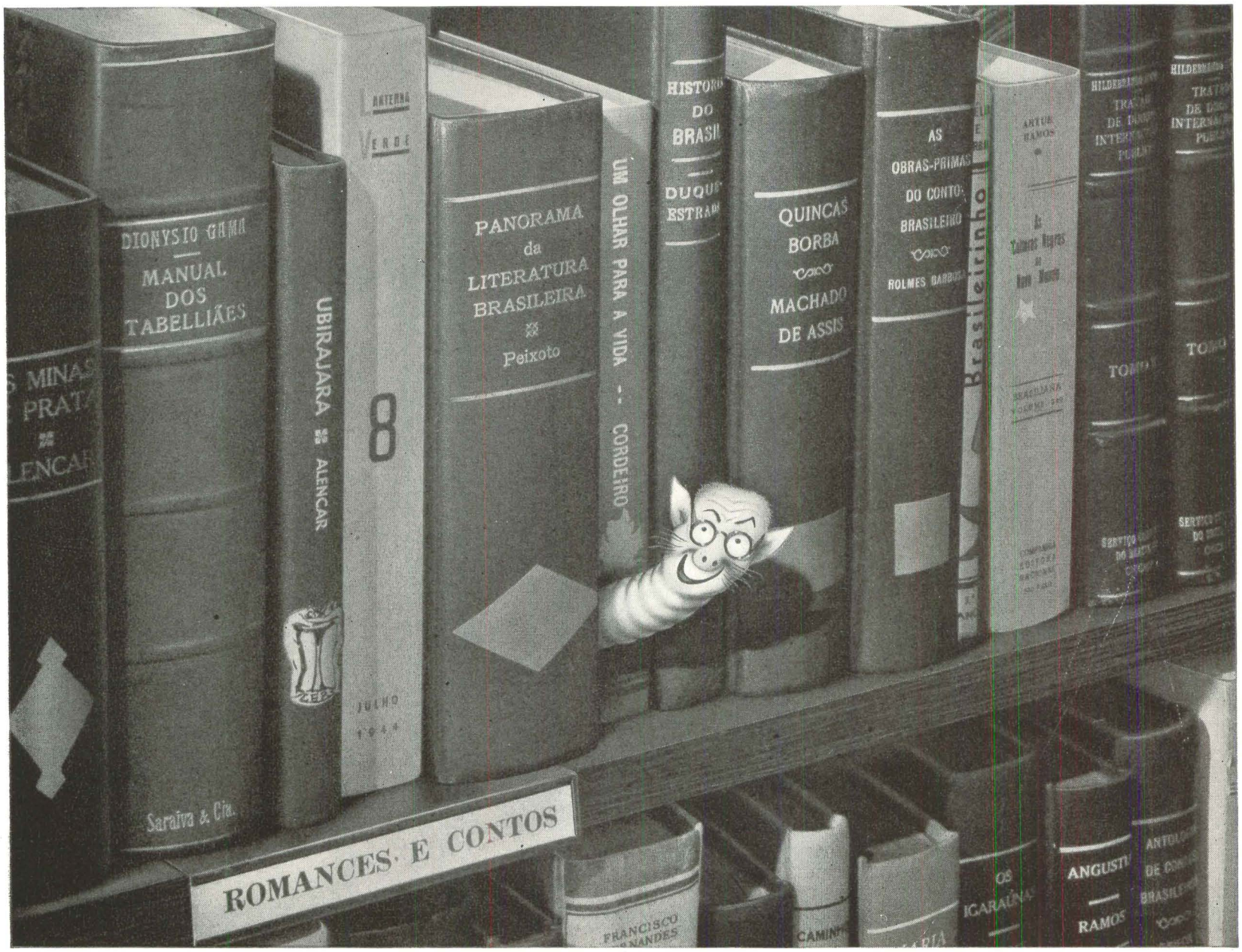
The answers to this question are almost as varied as the number of firms surveyed. What emerged chiefly was a belief that the next move, somehow, was up to the builder. Insofar as high costs are a challenge to find more efficient methods of operation, the present level of prices is a blessing (although hardly a welcome one) in disguise. Most developers agreed that the industry was entering a shakeout period in which only the skillful merchant would survive. In the words of builder Charles H. Freeberg, of Memphis: "The successful merchant builder of 1949 will have to build more efficiently, merchandise better, reduce profit margins, and sell these three ideas to subcontractors, suppliers, and field labor."

Could it be done? In the view of most developers, it would have to be. The largest area of agreement appeared on the subject of more efficient building methods. This will involve the use of more site prefabrication and preassembling; more mass production; increased use of labor saving equipment; greater attention to engineered production methods; closer supervision by the builder over his subcontractors. Predicted, too, despite the contrary views of some who have tried it, was the greater use of shop-built partitions and storagewalls. Also simpler and more carefully worked out floor plans. Better scheduling will be needed, plus a more rigid selection of labor. This was industry's job and the blame for its failure—in the event it failed—could not be passed on to labor or the banks.

Marsh Realty Co. of Charlotte, N. C., boasts substantial cost reduction through (1) more careful planning before construction is actually started; (2) increased use of shop and site prefabrication; (3) use of specialized crews to handle only specific construction tasks. Other areas, too, are suceptible to cost reduction. More competitive shopping for subcontractors and materials is expected. Substitute materials, such as plaster board, will eliminate expensive hand labor operations. Slab foundations will be virtually mandatory for low priced houses. And builders are agreed that profit margins will have to come down.

The builder is no less articulate on the need for corollary reductions in the cost of land and land development, and a revision of building codes and zoning laws. Factors such as these offer greatest resistance to lower prices, since they are almost entirely outside the builder's control.

The final consensus: if government, labor and finance can reach a compromise in their respective demands, costs can be substantially lowered. Cooperation would have to be the keynote, but few builders were willing to predict such a honeymoon yet. For most of them, cost reduction will continue to be a single-handed job.



How to keep a bookworm comfy

Book-browsers made a habit of staying away in large numbers from a Rio de Janeiro bookshop during the steaming Rio summer.

The bookseller finally defied the prejudice against air conditioning which exists among the South-of-the-Borderites . . . and asked a consulting engineer for a trial installation. Would clerks and customers like it? Only a test would tell!

That was how Trane equipment came into the picture.

The installation posed special problems, due to a chronic water shortage. This was overcome with a Trane Air Conditioner equipped with a water economizer that uses only 1/20 the amount of water normally required for cooling —*saving 95 out of every 100 gallons.*

What a success! Owner, clerks, and patrons are enthusiastic. Summer trade is booming. Score another victory for Trane equipment—the same equipment that keeps air more comfortable, more usable, more efficient, in thousands of stores, offices, plants.

Perhaps *you* may have an air problem. Then, remember that Trane engineers know lots about air—how to dry it, humidify it, warm it, cool it, clean it, and move it. Get in touch with your local architect, engineer, or contractor!

THE TRANE COMPANY · LA CROSSE, WISCONSIN

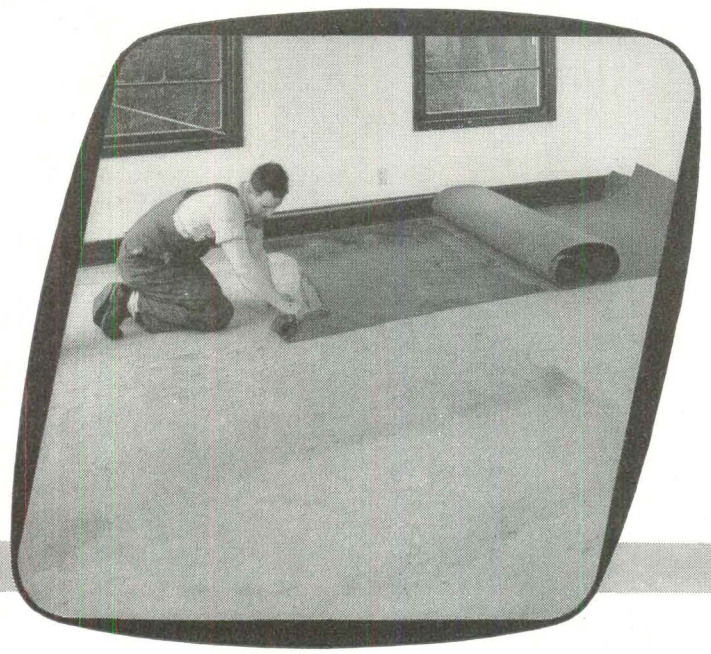
TRANE COMPANY OF CANADA, LTD., TORONTO

TRANE
THE HOUSE OF WEATHER MAGIC

MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT . . . OFFICES IN 75 CITIES

Linoleum, Tile, Carpeting— All Need This Better Base Panel

INTERIOR-TYPE
Douglas Fir Plywood
PLYBASE ®
GRADE B-D
D.F.P.A. INSPECTED



PLYBASE is a NEW GRADE of Interior-type Douglas fir plywood with a face of B (solid) veneer, and a back of D veneer. All sanded both sides. For full details on PlyBase use and application, see Sweet's File, Architectural, or send for the new 1949 Basic Plywood Catalog. Write the Douglas Fir Plywood Association office nearest you: Tacoma Bldg., Tacoma 2, Wash.; 1707 Daily News Bldg., Chicago 6; 1232 Shoreham Bldg., Washington 5, D. C.; The 500 Fifth Avenue Bldg., New York City 18.

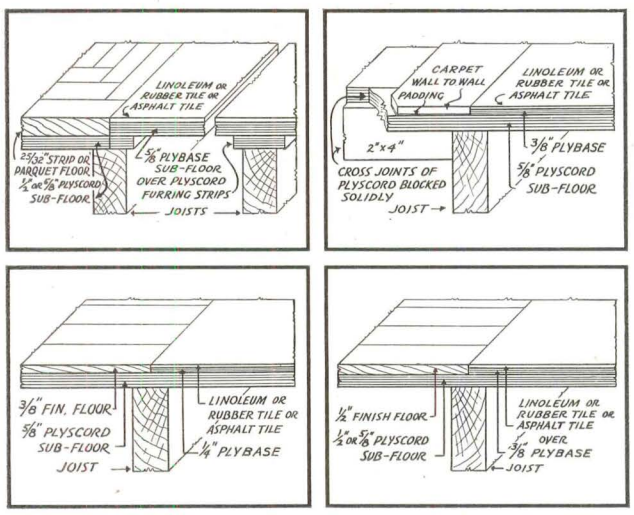
PLYBASE THICKNESSES:
3/16", ¼", ⅜", ½", ⅝", and ¾".

PLYBASE WIDTHS:
30", 36", 42" and 48".

PLYBASE LENGTHS:
60", 72", 84", 96", 108", 120", and 144".

PLYBASE Makes Coverings Look and Wear Better!

SUGGESTED DETAILS FOR THE USE OF PLYBASE IN TYPICAL FLOORING JOBS



PlyBase is the ideal base material for all types of modern wall-to-wall floor coverings. Joints are reduced to a minimum; the covering is smooth, firm . . . looks better, lasts longer.

Sanded smooth, PlyBase presents a tight, solid surface. The large panel sizes go down quickly, are easy to handle, save time and labor on the job. Use PlyBase on remodeling work, too, as a firm surface for new coverings over old, rough, worn floors. And on walls, PlyBase serves as a backing for wall tile and over finish coverings which require a smooth, solid backing.

Specify PlyBase—identified by the grade-trademark shown above!

For Subfloors—PLYSCORD

Under PlyBase or any type of finish flooring, PlyScord is the ideal subflooring. The big panels of PlyScord cover joists quickly, provide a smooth, even surface that's strong, rigid, tight and draft-free. Identified by the "grade-trademark" at the right.

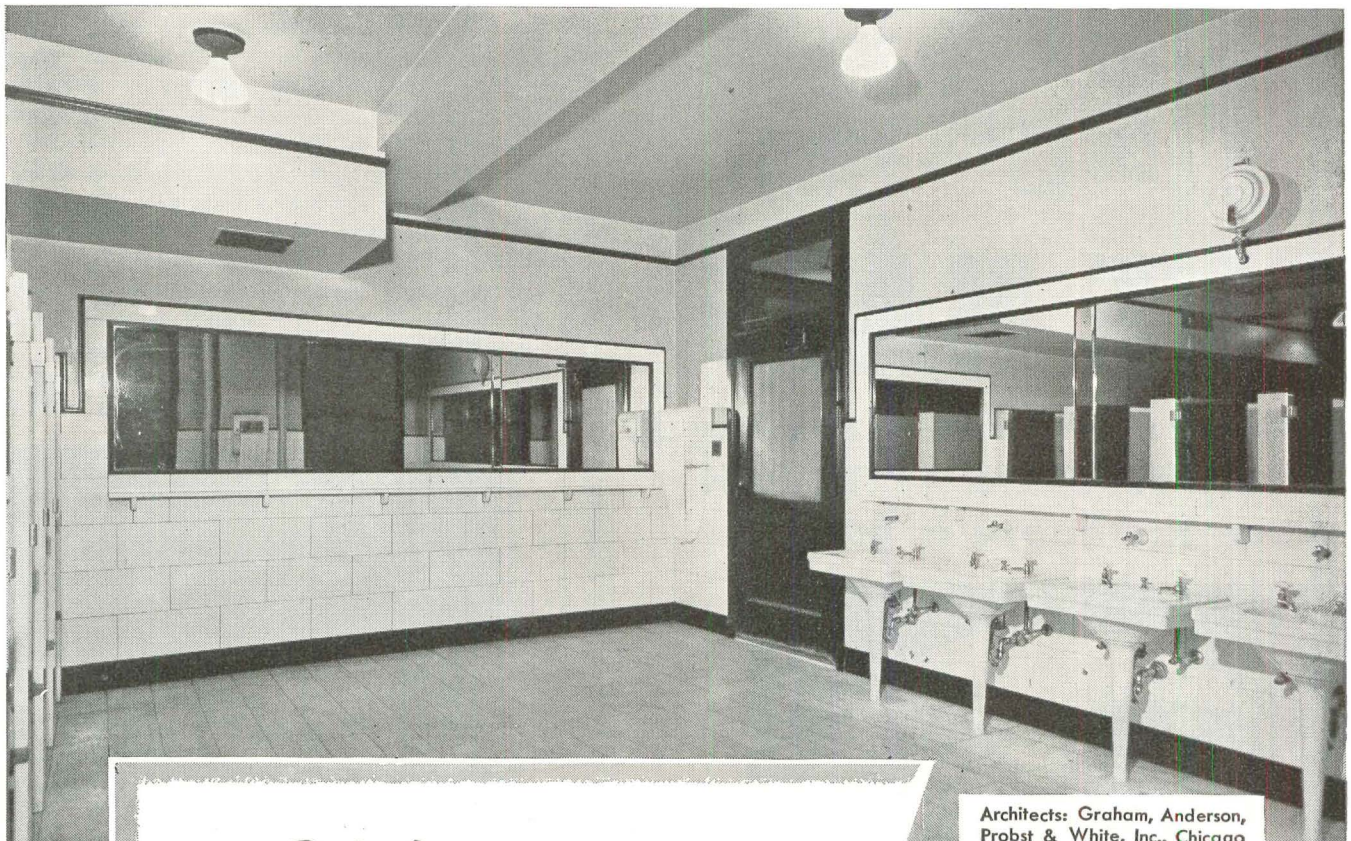
INTERIOR-TYPE GENUINE Douglas Fir Plywood PLYSCORD GRADE C-D SHEATHING D.F.P.A. INSPECTED

Douglas Fir PLYWOOD

LARGE, LIGHT, STRONG

Real Wood Panels





Architects: Graham, Anderson, Probst & White, Inc., Chicago

21 Years Old!

and these VITROLITE WALLS still sparkle like new

What's more, they will look new indefinitely . . . because *Vitrolite** is GLASS tiling.

Vitrolite won't craze, warp or swell . . . is hard to scratch or mar . . . never needs refinishing. The only care required is quick cleaning with a damp cloth. *Vitrolite's* hard surface can't absorb dirt, germs, odors, moisture. Even grease whisks off easily.

Low upkeep is one important reason why architects specify *Vitrolite* walls for washrooms, corridors, lobbies, kitchens. Beauty's another. *Vitrolite's* never-fading sparkle makes rooms seem lighter, more cheerful . . . creates a good impression on clients, tenants, employes. For complete information, write for our *Vitrolite* book or see Sweet's Architectural File, section $\frac{13b}{11}$. *®



Unretouched photograph taken this year shows *Vitrolite* that was installed in 1928 on washroom walls in the 120 S. La Salle Street Building, Chicago. These 21-year-old walls still look new. Mr. Philip F. Hoops, building manager, reports they have proved satisfactory in every respect . . . highly approves *Vitrolite* for walls that must be kept sparkling clean.

VITROLITE MADE BY **LIBBEY·OWENS·FORD GLASS COMPANY**
4149 Nicholas Building, Toledo 3, Ohio

Sky blue • cadet blue • light gray • dark gray • jade • cactus green • Alamo tan • peach • mahogany • red • white and black

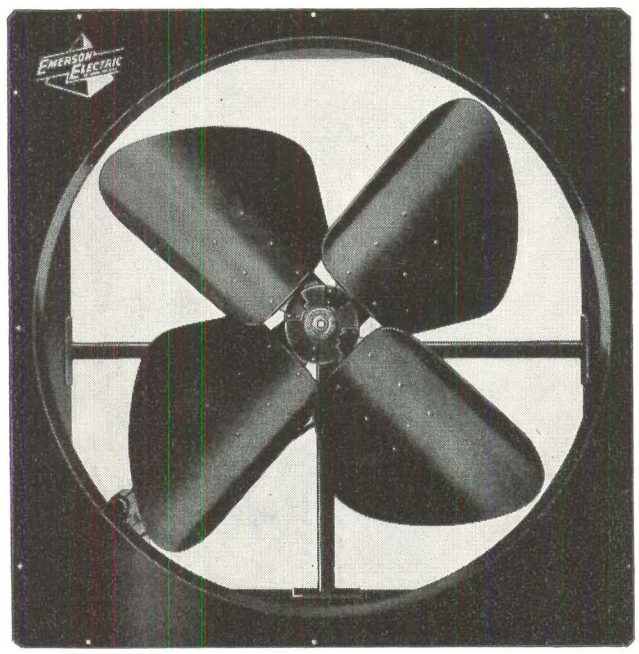


SAVE HALF

the installation cost for clients by installing an

EMERSON-ELECTRIC ATTIC FAN

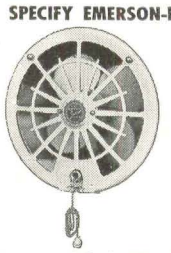
when the house is *built!*



Three sizes: 36-, 42-, and 48-inch, exhausting up to 19,350 CFM. Sleeve-bearing horizontal discharge type for wall, or for ceiling installation with canvas plenum chamber and automatic shutters. Also ball-bearing vertical discharge type for ceiling installation with automatic shutters.

Clients will thank you in August if you remind them *now* to include Emerson-Electric "breeze-conditioning" in their building *plans.* Savings up to one-half on attic fan installation costs are easily effected during building operations, as compared to alterations necessary after erection. An Emerson-Electric Attic Fan quickly exhausts hot, stagnant air . . . replaces it with cool night air drawn in through open windows and doors in the living quarters. Indoor temperature is lowered to approximately that of outdoors, with *continuous* air circulation that gives "sleeping-porch comfort" throughout the house. You assure your clients a premium in long, trouble-free service when you specify Emerson-Electric . . . pioneers and leaders in fan equipment for 58 years. Write for free Cooler Fan Bulletin No. B-45.

SPECIFY EMERSON-ELECTRIC KITCHEN FANS



Please *her* with a Kitchen Ventilator Fan . . . to whisk away smoke and cooking odors, prevent spread of greasy vapors to walls and drapes. Easy to install in any construction. Models for wall or ceiling installation.

THE EMERSON ELECTRIC MFG. CO. • ST. LOUIS 21, MO.

EMERSON ELECTRIC

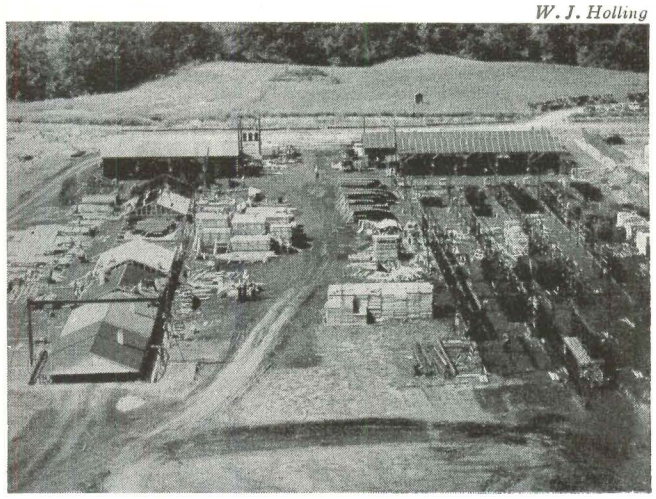
MOTORS • FANS — APPLIANCES

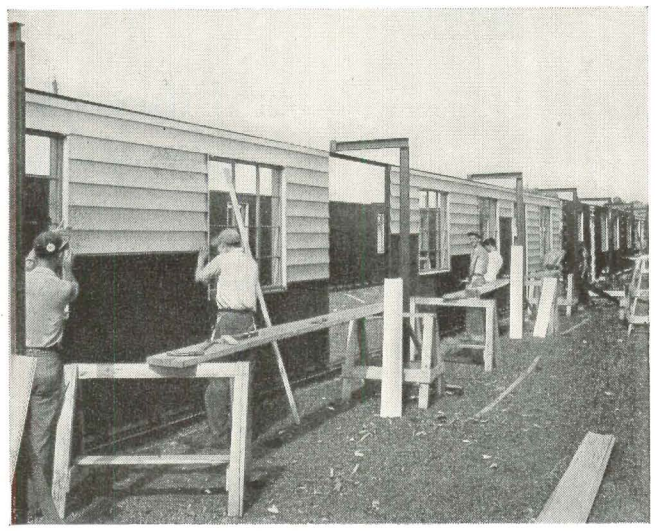
BYRNE'S CONTRACT JOBS

The unforseen delays in site assembly which builder Jack Byrne encountered in his 1,000 house project near Baltimore also threw the basis of his shop cost estimate (see p. 144) out of line. The expensive fabricating equipment (a $391,000 investment) as well as the large amount of rolling stock (Byrne at that time believed in owning all his own trailers, cranes, etc. and would let no subcontracts) were to be charged to three big house developments, of which Harundale was only the first. But site operations lagged so far behind schedule that neither plant tools nor trucking equipment could be released when needed to start a second job in Moline, Ill. and Byrne had to buy additional machinery.

Byrne's Moline job was a 500 house project for a farm implement firm. He also undertook a 1,000 house job for another firm in Peoria, Ill. These manufacturers, anxious to avoid the well-known headaches of "company housing" and equally anxious to provide houses for their employees, hired Byrne on a contract basis.

W. J. Holling

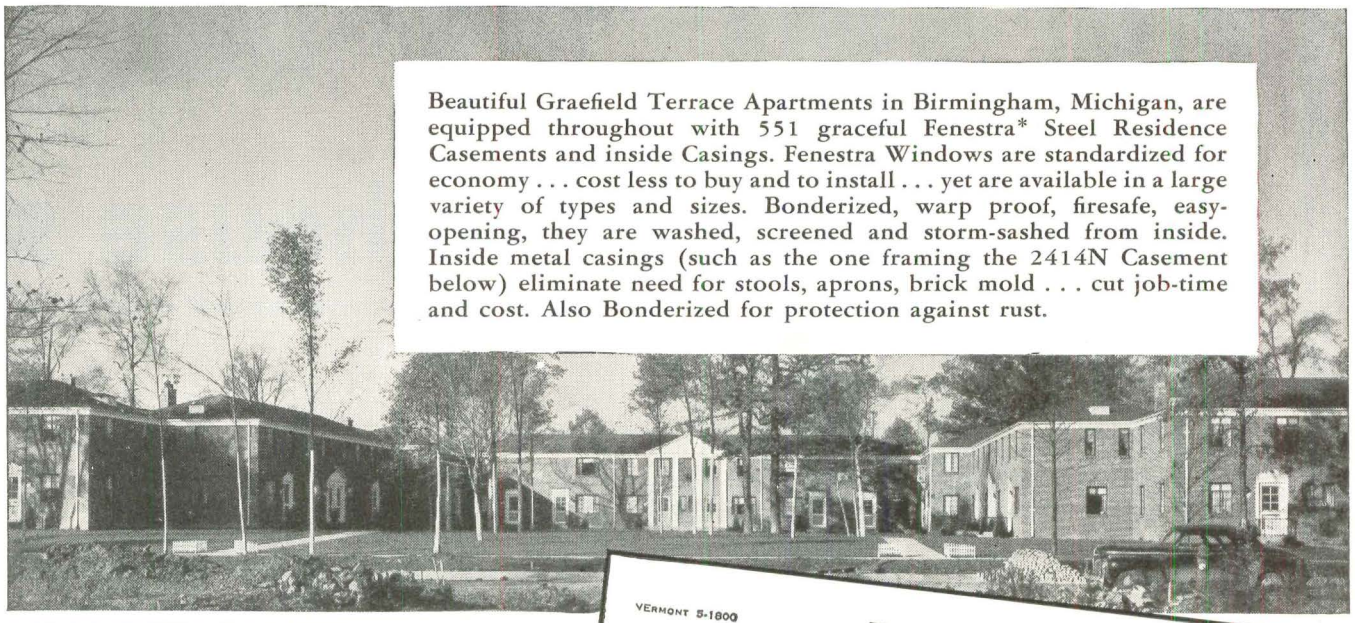




At Peoria, Byrne set up open-air shop, having discovered that rain on the site stops the job even though a roofed-over shop could go right on working. He also introduced aluminum siding above).

Cost and price history of the Moline job roughly duplicated the dismal Baltimore story. Originally put on the market at $7,450, the houses are now priced around $10,000. Although the job was finished last September, so far only half the houses have been sold. In Peoria, he poured 472 slabs last fall, has completed only 75 houses, priced at $10,000. It is not likely that any more slabs will be poured.

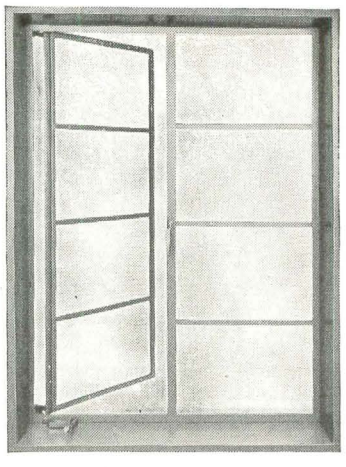
(Continued on page 162)



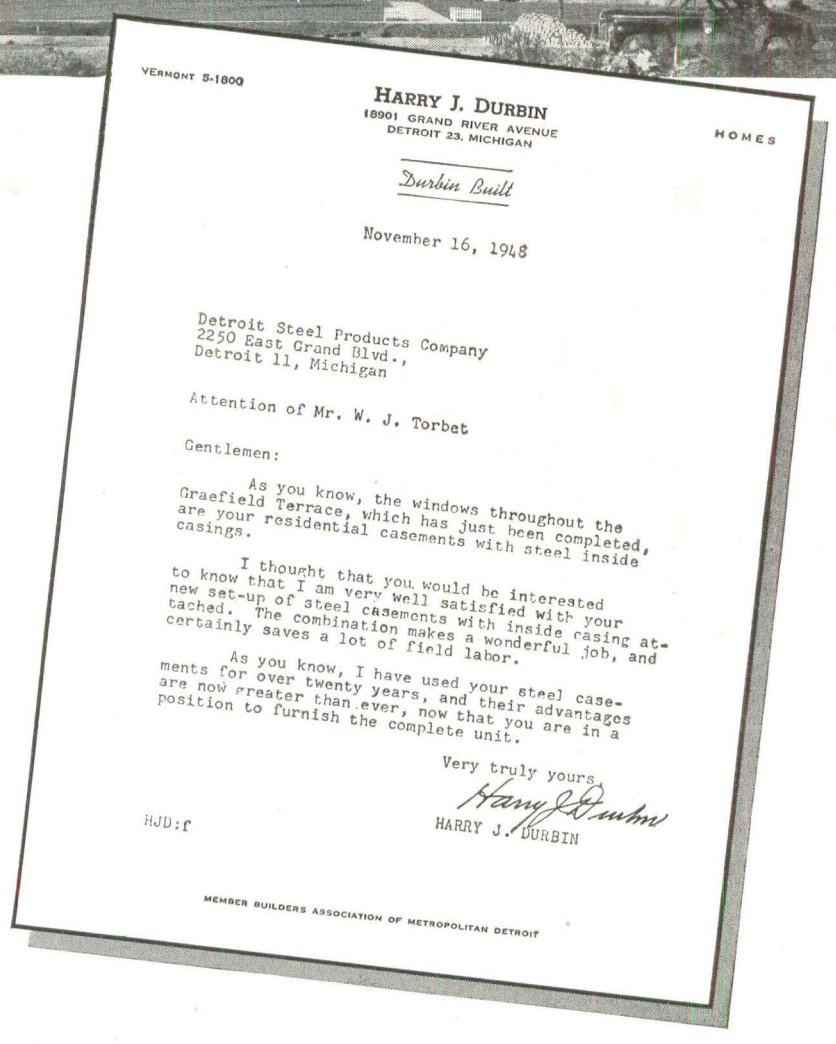
Beautiful Graefield Terrace Apartments in Birmingham, Michigan, are equipped throughout with 551 graceful Fenestra* Steel Residence Casements and inside Casings. Fenestra Windows are standardized for economy . . . cost less to buy and to install . . . yet are available in a large variety of types and sizes. Bonderized, warp proof, firesafe, easy-opening, they are washed, screened and storm-sashed from inside. Inside metal casings (such as the one framing the 2414N Casement below) eliminate need for stools, aprons, brick mold . . . cut job-time and cost. Also Bonderized for protection against rust.

Architect: Merle William Hogan, Detroit.
Contractor-Builder: Harry Durbin.

"Advantages of your Steel Casements are now GREATER THAN EVER"



One of several types of Fenestra Casements with inside metal casings, used by Mr. Durbin in Graefield Apartments.



VERMONT 5-1600

HARRY J. DURBIN
18901 GRAND RIVER AVENUE
DETROIT 23, MICHIGAN

HOMES

Durbin Built

November 16, 1948

Detroit Steel Products Company
2250 East Grand Blvd.,
Detroit 11, Michigan

Attention of Mr. W. J. Torbet

Gentlemen:

As you know, the windows throughout the Graefield Terrace, which has just been completed, are your residential casements with steel inside casings.

I thought that you would be interested to know that I am very well satisfied with your new set-up of steel casements with inside casing attached. The combination makes a wonderful job, and certainly saves a lot of field labor.

As you know, I have used your steel casements for over twenty years, and their advantages are now greater than ever, now that you are in a position to furnish the complete unit.

Very truly yours,

Harry J. Durbin

HJD:f

HARRY J. DURBIN

MEMBER BUILDERS ASSOCIATION OF METROPOLITAN DETROIT

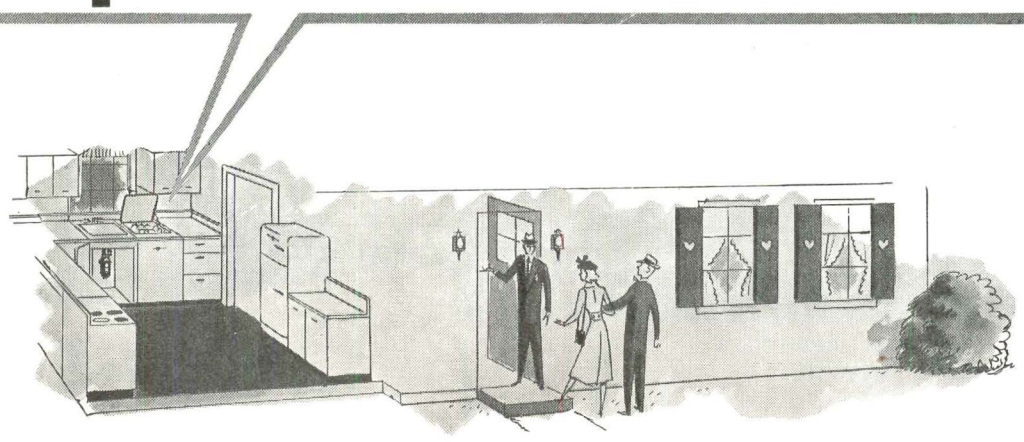
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Fenestra

RESIDENCE STEEL CASEMENTS

Fenestra's full line provides a right window for every need—even special uses such as over the sink or buffet. For full information on types and sizes, see your local Fenestra Representative, or write to Detroit Steel Products Company, Dept. AF-4, 2251 East Grand Boulevard, Detroit 11, Michigan.

This part of the house sells





the WHOLE HOUSE faster !

It's a fact—and it's proved every day . . .

New homes sell faster than ever when your prospects see the General-Electric Electric Sink—combining the G-E Automatic Dishwasher and G-E Disposall!*

Why not? All that toil-saving, leisure-creating convenience costs the home buyer only $1.67 extra each month.†

Only $1.67 a month never to have to touch dishwater again!—Never to have to handle pesty garbage!

"Packaged Mortgage" makes paying easy!



Those are sweet words to the home-seeker. Those are the modern dream-kitchen advantages home buyers want. And they're easily within the average family's reach with the "packaged mortgage" plan!

The "packaged mortgage" *includes* the cost of the G-E Electric Sink in the *monthly payments for the house!* No burdensome extra installment costs!

That's the dream-kitchen story General Electric is telling millions in Dishwasher and Disposall advertising.

*General Electric's trade-mark for its food-waste disposal appliance.

That's the dream-home bargain more and more home buyers insist upon. And that's the *selling* story that helps you make *quick* home sales!

Why not include these great electrical features in your new homes, renovations, and apartments?

What about cost?

It costs you *nothing* extra! The retail price of each appliance is added to the price of the house. You get the retail profit!

What about installation?

General Electric offers you the facilities of its Home Bureau in planning the installation of the G-E Electric Sink!

What about selling help?

General Electric service *starts* with planning . . . and *follows through* to a complete advertising and merchandising program that speeds the sale of your new homes!

Write to General Electric Company, Appliance and Merchandise Department, Bridgeport 2, Conn.

Quick! Here come those home buyers with the G-E gleam in their eyes right now!

†Covers estimated financing charge.

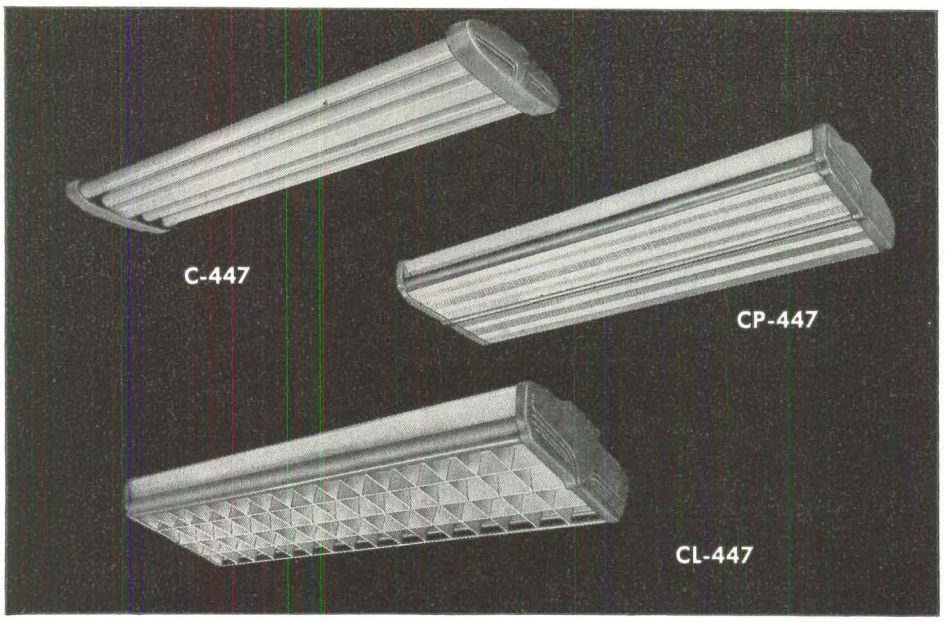
DISPOSALL
Means
Good-by to Garbage
Automatically

AUTOMATIC DISHWASHER
Does the Dishes
by Itself

You can put your confidence in—

GENERAL ELECTRIC

NOW! 3 New 4-Lamp Fixtures to MATCH Sylvania's C-247 Two-Lamp Units!



EASY TO INSTALL — These three new 4-lamp fluorescent units, designed to *match in styling and construction* the popular 2-lamp C-247 line, are just as easy to install! As in all Sylvania fixtures, special knockouts and wiring arrangements are carefully worked out to make installation jobs the easiest and quickest ever known.

EASY TO MAINTAIN—No worry about nuts, bolts, or screws—none is required to hold shielding assemblies of the plastic shielded and louvered units . . . while the *basic chassis* fixture—the C-447—is so designed that lamps and starters can be readily replaced by a very simple removal of the end caps, which are held in position by knurled thumb screws. Cleaning is especially simple, since the one-piece top-housing and the reflector can be very readily dusted or washed.

INTERCHANGEABLE BASIC CHASSIS — The C-447 and C-247 are the *basic chassis* of the plastic shielded (CP-447, CP-247) and louvered (CL-447, CL-247) fixtures. From the basic chassis, you can convert to these shielded models simply by ordering the proper conversion sets.

LUMINOUS SIDE SHIELDING — Luminous metal side shields are a feature of both the CL-447 and the CP-447. These shields pick up light directly from the enclosed lamps and reflect it from their white Miracoat finish. This eliminates glass and plastic along the sides, insuring greater rigidity of the shielding assembly as well as reducing the possibility of breakage.

ALL METAL CONSTRUCTION — All metal construction is an important factor for greater durability and long life. Sylvania fixtures are noted for their "new look" even after years of outstanding service.

COMPLETE PACKAGES OF LIGHT — Complete packages of light means that these new fixtures come *complete, ready to install,* without fussing for lamps or starters. Your clients get the finest fixture housings equipped with the finest lamps, starters, lampholders, and ballasts!

MIRACOAT FINISH—Reflectors finished in Sylvania's easy-to-clean, Miracoat white, affording a reflection factor of not less than 86%. Chassis and end caps finished in Sylvania's high temperature, scuff-proof aluminum baking enamel to reduce brightness contrast with the ceiling.

ONE-YEAR GUARANTEE—Sylvania's one-year guarantee includes lamps, ballasts, and starters. This guarantee covers 25 or more fixtures ordered for a single installation.

SYLVANIA ELECTRIC

mail coupon today!

Sylvania Electric Products Inc.
Advertising Dept. L-7004
500 Fifth Ave., New York 18, N. Y.
Gentlemen: Send full details on new C-447 line (Engineering Bulletin O-75).
Name_____
Address_____
City_____ State_____

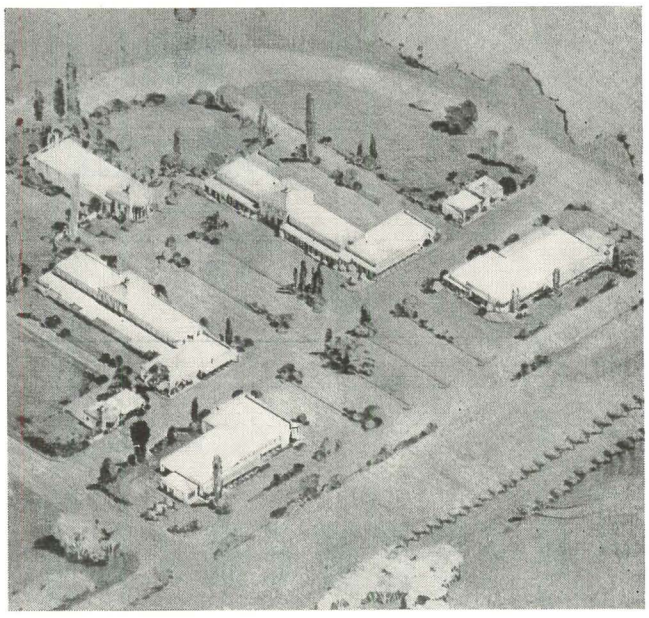
FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES; ELECTRIC LIGHT BULBS; PHOTOLAMPS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

BYRNE'S LABOR TROUBLES

Ex-housebuilder Byrne initially blamed low labor productivity as one big factor in his failure to make a go of his 1,000-house venture in Baltimore. But (perhaps after some pious thought about his future with the cantankerous building unions) he now says that labor productivity increased when he changed from non-union to union labor in the middle of the job, and a Byrne vice-president tosses this bouquet: "We found the international officers of the building trades entirely sincere in their efforts to provide us with good men and to keep our jobs operating in an efficient and economic manner. No doubt in some localities irresponsible leadership in the locals has caused trouble. But our experience in operating under international agreements proved to be highly satisfactory."

However happily Byrne's rapprochement with the union may have turned out, the factors which impelled him to make the change were these: "We found that practically all of the good skilled mechanics were union men. Thus unless we went to the local unions we could not get enough workmen or the best workmen. We also found (in the Peoria and Moline jobs) that the large industrial concerns for whom we were working could not permit their construction to be handled by non-union labor because it caused trouble in their own labor relations."

There is some evidence that Byrne put more time (and money) into elaborate time-keeping than into productive labor supervision. Administrative overhead per house amounted to $1,600. But an FHA comment is revealing: "Byrne claimed that he had such a tab on his workmen that he knew from one day to another whether a man was doing better or worse work. Now that's a builder who is spending too much time on his paper work." As prices rose, the lag in house sales—an average of 87 days was required to close each sale—added to overhead. Compared to the Byrne figure, overhead of $600 per $10,000 house is the figure reported by one large-scale Eastern builder. The familiar argument that the small builder with his office in his hat can beat many large scale operations on administrative overhead alone will gain weight from Byrne's experience.

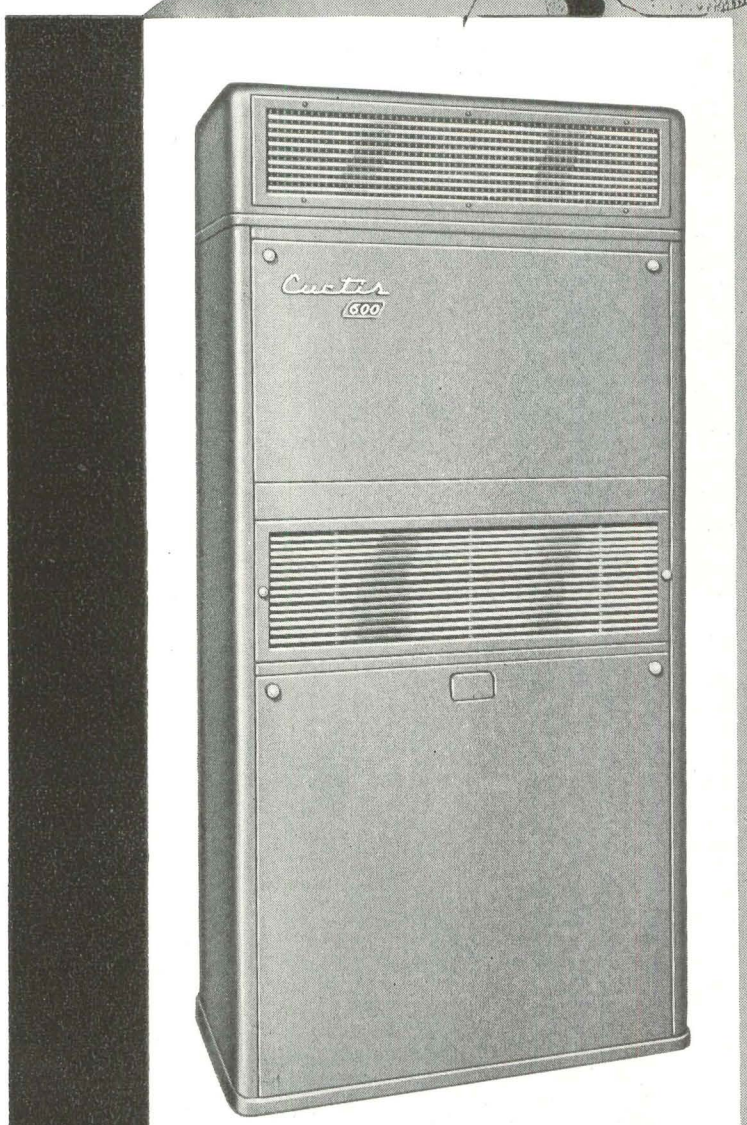


Projected shopping center might have helped bail out Baltimore job, but when house sales lagged, Byrne could not peddle leases.

SPECIFY.... Curtis

95 Years of Successful Manufacturing

AIR-CONDITIONING UNITS



Compact, attractive units . . .
3, 5, 7½, 10 and 15 tons.

Assure

Easy Installation

Trouble-Free Operation

Longer Life

Sound engineering and proven precision manufacturing are your guarantee that Curtis air-conditioning equipment will be a source of complete satisfaction to everyone concerned:

Architects

Engineers

Contractors

and Users

In thousands of installations throughout the world, meeting a wide variety of requirements, Curtis equipment is giving trouble-free service to satisfied users, and has for many years.

Specify Curtis and get these advantages.

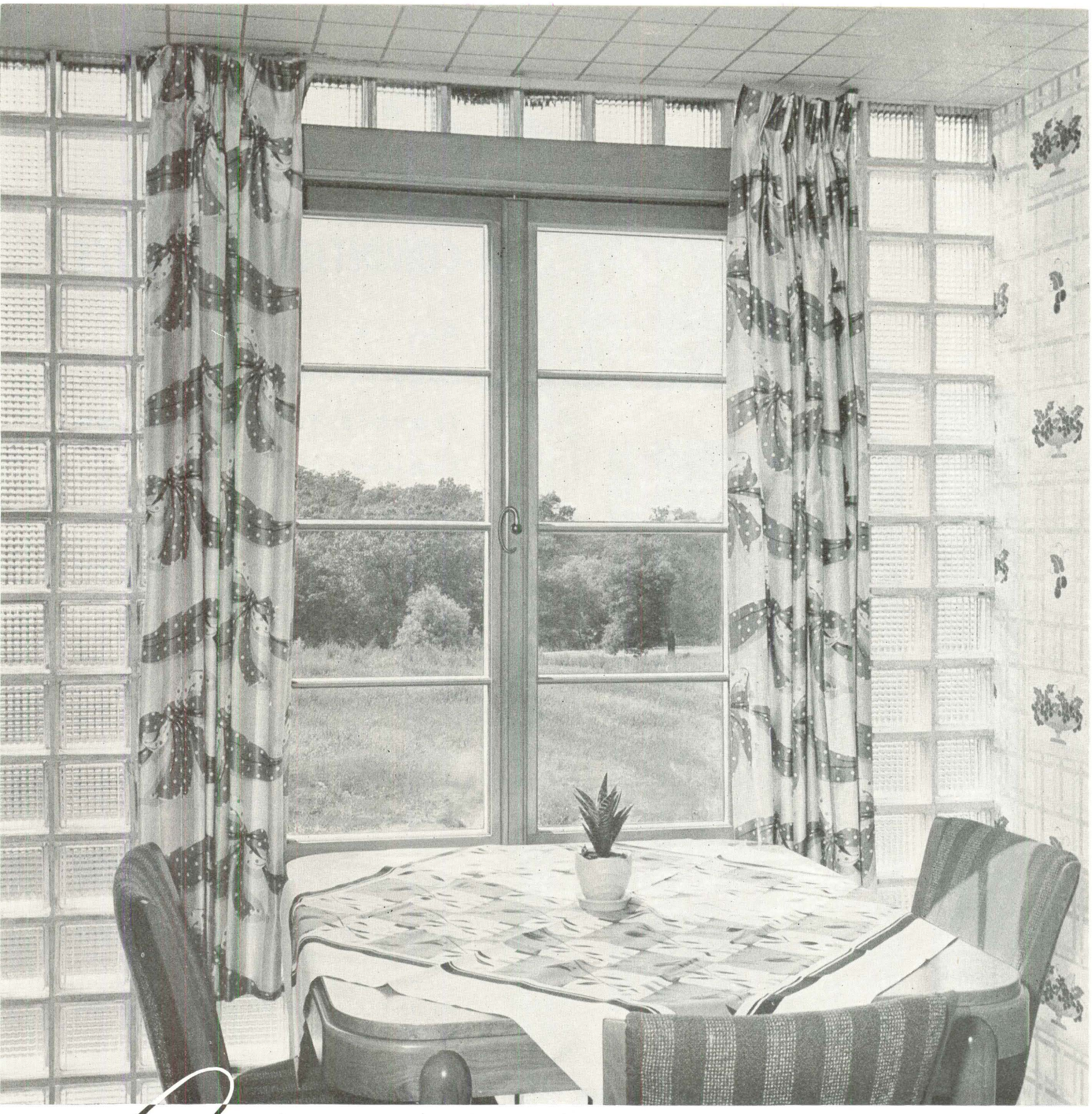
- One day installation
- Cooling, dehumidifying, circulating and filtering air
- Easily adapted for heating
- Quiet, dependable operation
- Finger-tip control
- Completely assembled at the factory

Write for full information on Curtis equipment for any air-conditioning or refrigeration need.

Curtis

95 Years of Successful Manufacturing
REFRIGERATING DIVISION OF
CURTIS MANUFACTURING COMPANY
1914 Kienlen Ave. • St. Louis 20, Missouri

R 49-4



ANDERSEN Windowalls*

UNBLOCKED VIEW for breakfast and informal meals is provided by this ANDERSEN WINDOWALL, a single Andersen Gliding Window Unit set into a wall of glass block.

This WINDOWALL performs its dual function superbly—doing a window's work of framing a view, providing ventilation, admitting sunlight—doing a wall's work by being weathertight as it is weather stripped and double-glazed.

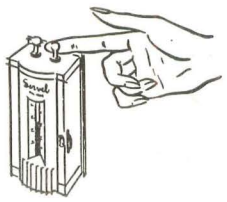
Specification data on ANDERSEN WINDOWALLS is in Sweet's Architectural and Builders' Catalogs, or will be sent by us upon request. See your local lumber or millwork dealer for further information.

*TRADEMARK OF ANDERSEN CORPORATION

Andersen Corporation

BAYPORT • MINNESOTA

At the flick of a finger . . .



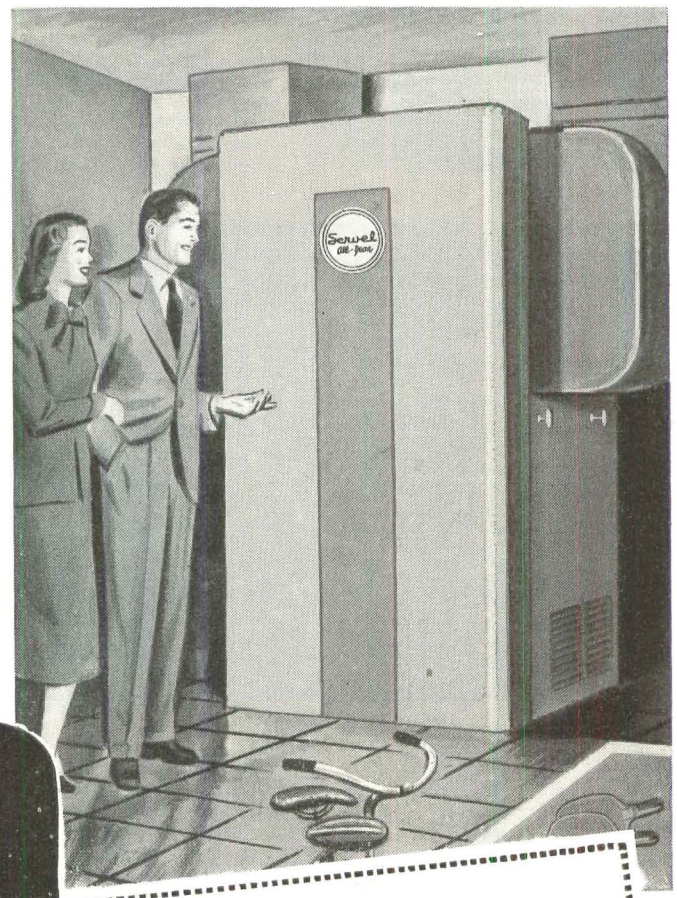
Instant heat or instant cooling

Only Servel provides your clients with ideal indoor climate

Whether you're planning a home or a business establishment, you can provide your client with perfect indoor climate by including Servel *All-Year* Air Conditioning.

In summer, the Servel *All-Year* Air Conditioner refrigerates the air, removes sticky, wilting humidity. In winter, this same unit floods the whole building with even, draft-free warmth, adds just the right amount of moisture for comfort. In between seasons, Servel circulates draft-free air at prevailing temperatures. Year round, Servel filters out damaging dust and dirt and irritating pollens. The owner simply dials the desired climate and flips a switch for heating or cooling.

The Servel unit is economical to operate; it is backed by a 5-year warranty; it enables you to effect many construction economies. For complete facts on Servel *All-Year* Air Conditioning, ask your local Gas Company or write direct to Servel, Inc., 2904 Morton Avenue, Evansville 20, Indiana.



Servel
***All-Year* AIR CONDITIONER**

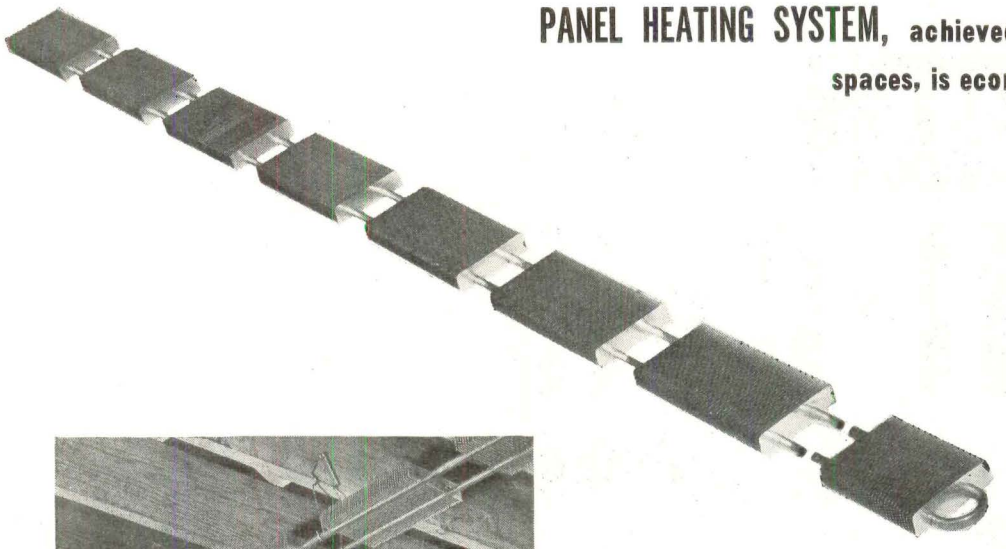
ARCHITECTURAL DESIGN COMPETITION

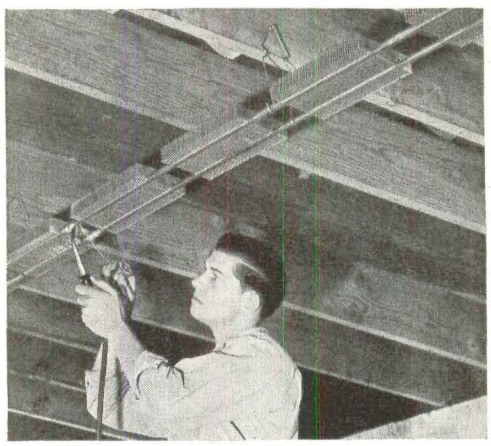
Servel, Inc. is co-sponsoring a nation-wide design competition in co-operation with the United States Junior Chamber of Commerce. To the architect, designer, or draftsman who submits the best plan for a National Headquarters for the Junior Chamber of Commerce will be awarded the actual commission, valued at approximately $12,000. Thirty-three other prizes will be awarded. Deadline is Midnight, May 16, 1949. For complete contest details, address Servel, Inc., Design Contest, Evansville 20, Indiana.

ONLY SERVEL PROVIDES ALL THESE ADVANTAGES

- √Draft-free warmth
- √Efficient cooling
- √Positive dehumidification
- √Fingertip control
- √Noise-free performance
- √Filter-cleaned air
- √Economical operation
- √5-year warranty
- √No moving parts in cooling system

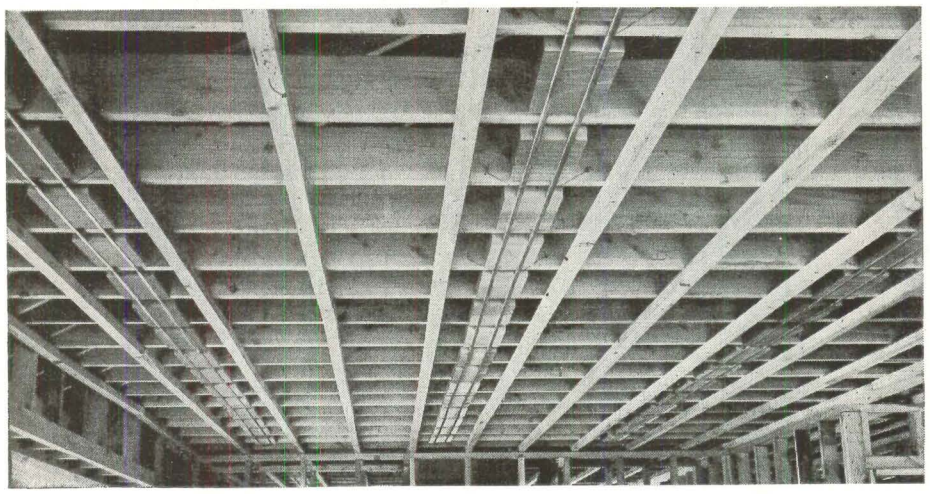
PANEL HEATING SYSTEM, achieved by mounting finned convectors in enclosed joist spaces, is economical and readily adaptable to frame construction

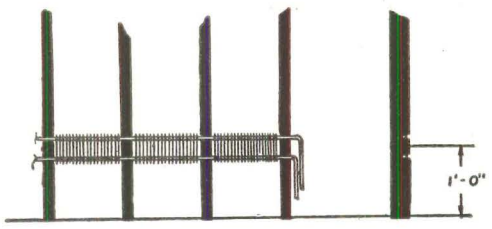




STANDARD 10 FT. KRITZER COIL has finned sections which fit between 12 in., 16 in. and 24 in. o. c. joists. Supply and return lines as well as return bend units are joined to coil by sweating.

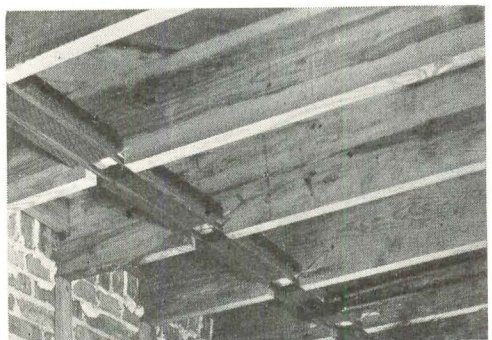
IN SOLDERING POSITION coil runs are held in hangers' claws. When runs are raised to permanent position hanger claws are bent upward locking runs in a free swinging support.





TWO METHODS of keeping coil runs clear of ceiling construction are illustrated. Above, 2 x 2 in. furring strips are placed transversely to the joists. This provides approximately 1½ in. between coils and ceiling which is suspended below the strips. Below, joists are grooved to accommodate coil sections. In both installations short finned convectors fit between each pair of joists to heat the enclosed space.

RADIANT COILS are equally adaptable to wall installation. Supplementary heat for unusual exposures or picture windows can also be provided by extra coil runs either in wall or ceiling.



A new and relatively simple means of turning the ceiling or wall of a house into a radiant heating panel is offered by Kritzer Radiant Coils. Supplied with hot water from the boiler, runs of these finned-coils heat the air in the enclosed spaces between the joists or studs, and the warm air in turn heats the panel surfaces. The coils are mounted transversely to framing members with short finned sections falling between each pair of joists or studs. Thus, the system is readily adaptable to conventional frame construction with practically no structural changes. Neither the floor slab ordinarily used with embedded coils nor the heavy plastering job for covering copper tubing is required.

Kritzer coils are constructed of two parallel runs of ⅝ in. copper tubing on 3 in. centers to which are mechanically bonded aluminum fins 1½ x 6 in. Coil units come in standard 10 ft. lengths made up of finned sections 12 in., 16 in. and 24 in. long to fit between joists or stud spacings.

When the framing of the house is completed, coil sections are installed in long runs. In ceiling installations, every joist space has a finned section: runs are placed on centers varying from 5 to 12 ft., depending on the heat requirements of the particular job. Installation of coils is basically simple. A chalk line gives the placement, and special hangers are nailed to every fourth joist. Individual sections of each run are then joined, placed in the specially designed hangers and adjusted to fit the entire series of spaces. Runs in each room are sweated together to form an entire circuit which is then connected to a supply and return line.

To keep the coils above the ceiling construction, 2 x 2 in. furring strips are applied crosswise to the joists, or joists may be grooved to accommodate the coil sections.

Zone control is achieved by operating different feed and return lines from a manifold at the pump. The limit per circuit is 60 lin. ft. Four or five such circuits are reportedly ample for the average home. The small number of circuits and the short travel of water, is said to practically eliminate the problem of balancing the system. Also due to the small water volumes involved, heat pick-up is said to be faster and the time-lag of heavy surfaces eliminated. Hot water up to 240° F. can be circulated through the coils without damage to plaster or concrete surfaces. During actual operation, panel surfaces rarely exceed 100° F.

In addition to providing the usual benefits of radiant panel type heat, and being readily adaptable to frame construction, Kritzer Radiant Coils offer other advantages. Initial cost of the finned sections is claimed to be lower than either bare pipe or tubing to accomplish the same Btu results. Installation cost is also substantially lower, because the entire permanent installation can be made at one time. Two experienced mechanics can install the entire radiation in a small house up to the pump manifold in four to six hours.

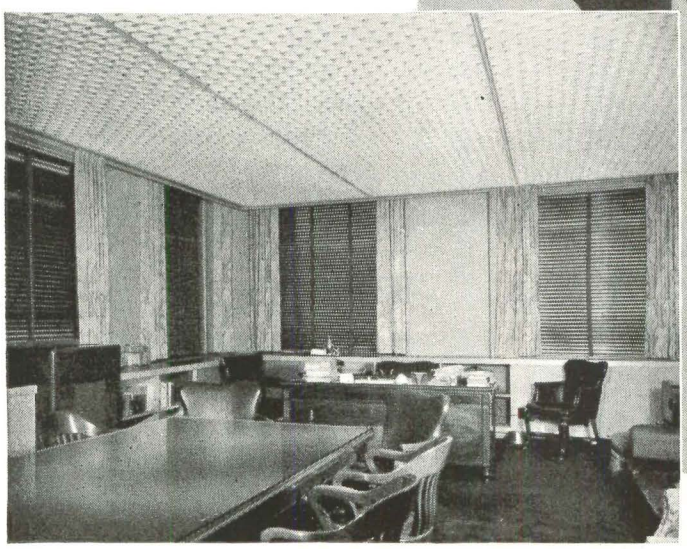
Heat loss upward with use of the coil runs is offset by insulation. In a two story house the best installation would conceivably be to put the downstairs coils in the ceiling where their loss upward would help warm the second story; additional coils for heating the second story might best be placed between studs in the wall to avoid heavy roof insulation. Runs of the coils at the edges of the cellar ceiling would not only keep the cellar warm, but also would provide extra heat at part of the first floor perimeter.

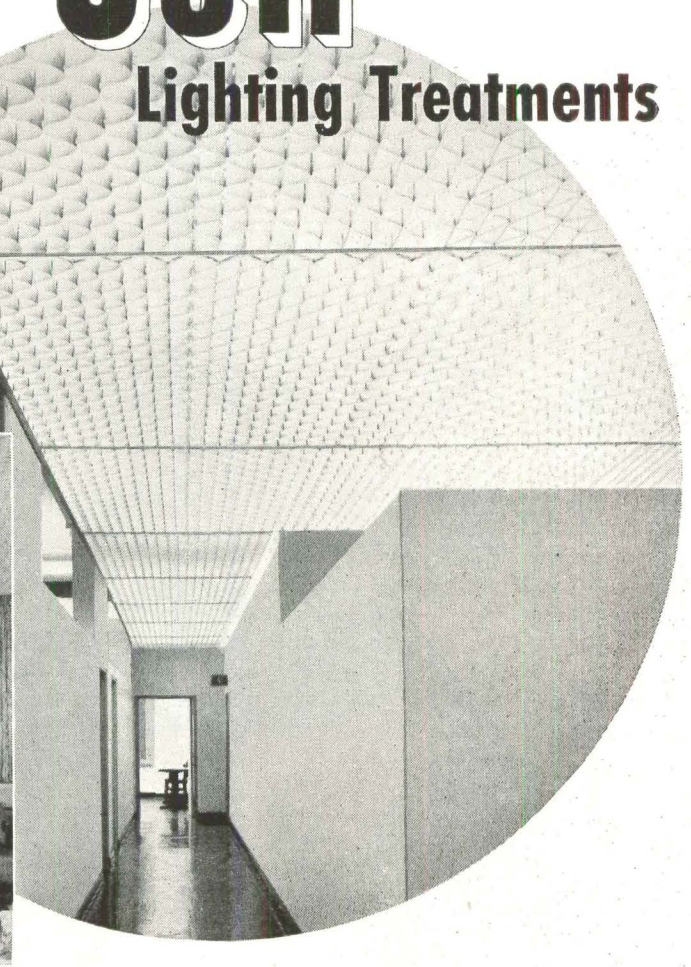
Manufacturer: Kritzer Radiant Coils Inc., 2901 Lawrence Ave., Chicago 25, Ill. *(Continued on page 170)*

New BEAUTY *with*

FEDERAL Cell-Ceil*

Lighting Treatments





Foyers, display rooms and offices take on new life and glowing beauty with the installation of Federal Cell-Ceil, the most modern lighting treatment.

This beautiful overall ceiling louvering is easy to install. The light-weight sturdy hanging mechanism developed for Cell-Ceil not only speeds up application but provides such easy access for relamping and cleaning that continued satisfaction to the client is assured.

Wherever you specify Federal Cell-Ceil you assure those who work and live under this louvered ceiling a soft diffused light. With all direct glare reduced and bad effect of sharp shadows eliminated, uniform lighting is provided that allows better easier-on-the-eye seeing.

The Federal engineering staff will gladly advise on any installation problem. Our technical bulletin on installation techniques is also available, address Dept. CC-8.

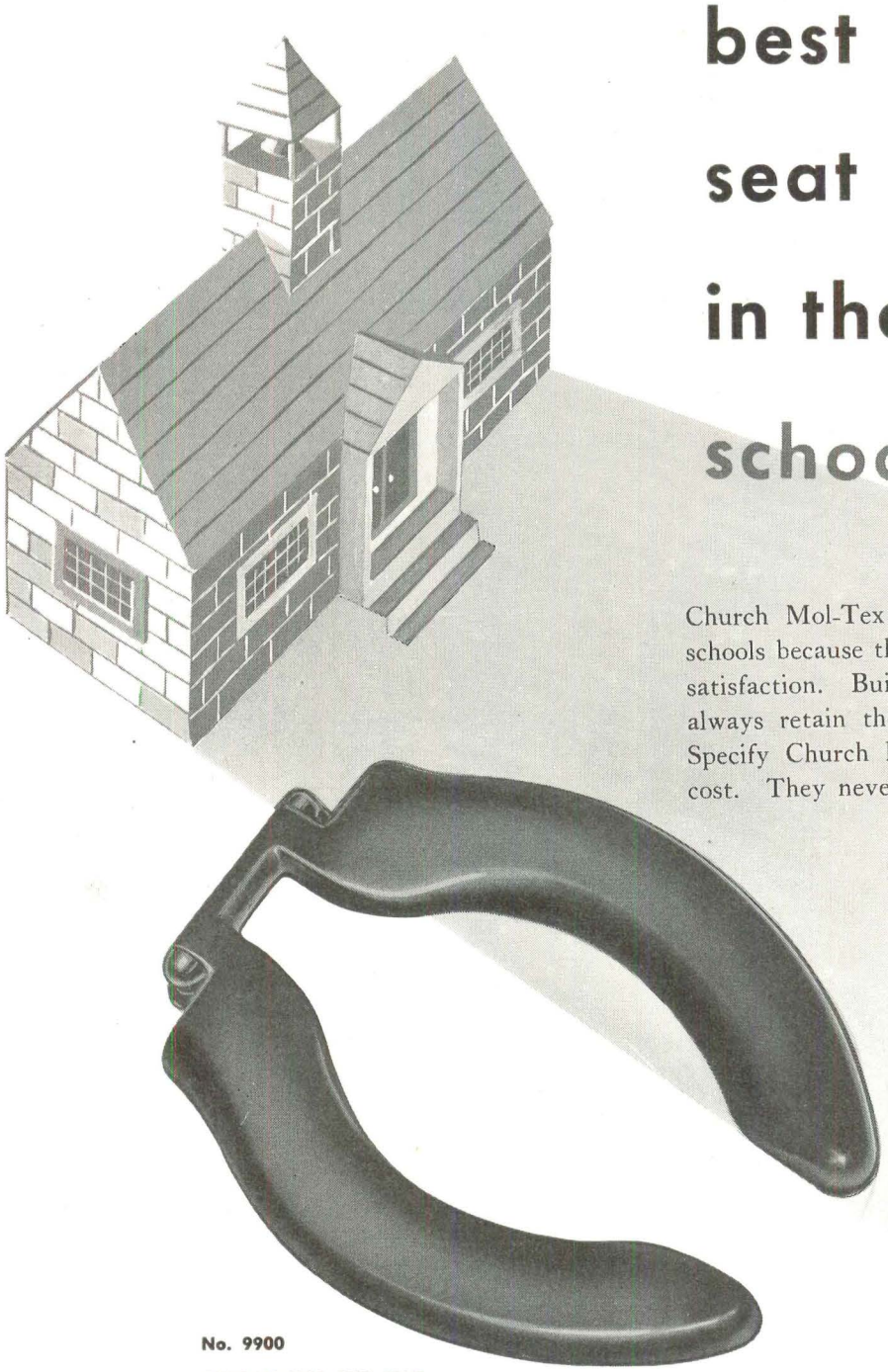
*Trade Mark "Cell-Ceil" applied for.

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Formerly: FEDERAL ELECTRIC COMPANY, INC.

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"The best seat in the school house"



Church Mol-Tex Seats are the preferred choice for schools because they give lasting service and complete satisfaction. Built to take plenty of punishment, they always retain their gleaming, attractive appearance. Specify Church Mol-Tex — the first cost is the last cost. They never need replacing.

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CHURCH MOL-TEX SEAT

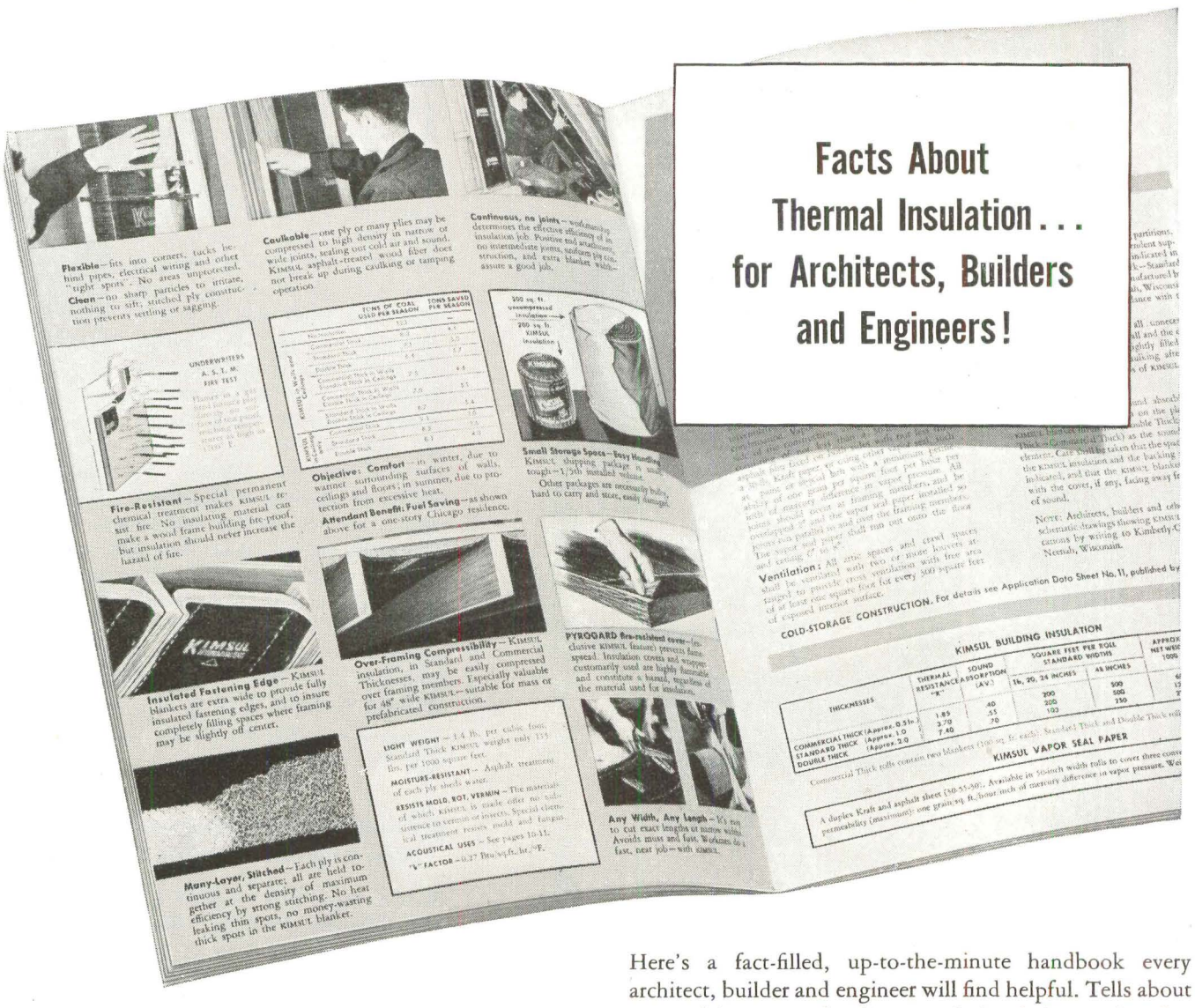
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Here's a fact-filled, up-to-the-minute handbook every architect, builder and engineer will find helpful. Tells about new and important developments in insulation engineering practice. Includes information on heat loss distribution, "U" Factors of various types of construction, typical architectural specifications and other data on both thermal and acoustical installations for all types of structures—commercial, industrial and residential. Send for your free copy today, or look for it in the 1949 issue of Sweet's Catalogs for Architects and Builders.

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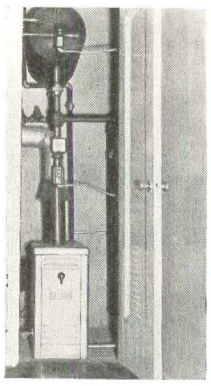
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ZONE.....*STATE*.....

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REG. U.S. & CAN. PAT. OFF.
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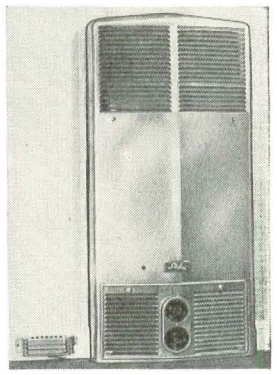
HEATING AND DOMESTIC HOT WATER UNIT is suitable for radiant and convection home heating.

Hook & Ackerman's Hydrotherm Combination Heating & Domestic Hot Water Supply System is a low cost hot water heating plant for small and medium size homes. The packaged combination unit consists of a Hydrotherm gas-fired boiler and a welded steel tank which serves as both an expansion tank and indirect heater. Its compact size and minimum water content reduce standby loss to a minimum and make its application economical for radiation surfaces varying from 200 sq. ft. to 1,000 sq. ft. Domestic hot water is heated as it passes through a copper heat exchanger coil built into the storage tank. If hot water is withdrawn, the control arrangement automatically diverts the full Hydrotherm output to satisfy the domestic hot water demand. The new combination unit, which is available in four sizes ranging from 72,000 Btu to 250,000 Btu input rating, is furnished with a 24 gal. tank for small one-bath homes and with a 40 gal. tank for two-bath residences. It requires only a 3 x 4 ft. floor area.

Manufacturer: Hook & Ackerman, Inc., 18 East 41st St., New York 17, N. Y.

IMPROVED GAS-FIRED SPACE HEATER fits in any exterior wall, eliminates chimney and duct construction.

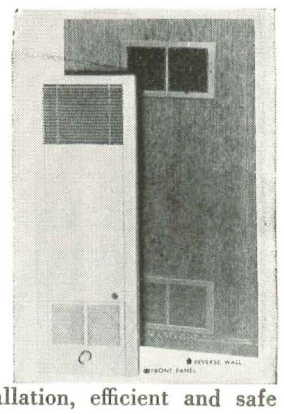
Since acquiring the Saf-Aire heating line late in 1948, Stewart-Warner Corp. has improved these gas-fired wall heaters with engineering and design changes. Two new models are now being presented for automatically heating rooms approximately 11 x 16 ft. and 14 x 18 ft. Both model 991-14 and 992-20 with input ratings of 14,000 and 20,000 Btu/hr. respectively, incorporate the exclusive "safety-sealed" heating principle and the patented Lundstrum vent. Eliminating expensive chimney and duct construction, the vent draws fresh air for combustion from the outside and exhausts the gaseous wastes back to the outside. Saf-Aires can be quickly and economically installed in all types of structures. Fitting into any exterior wall between studs, with the Lundstrum vent on the outside wall, they require only one utility connection, to the gas line. Three packaged accessory kits include flue and air intake terminals of lengths to meet the requirements of all types of construction. Saf-Aire heaters are automatically controlled by a floor level thermostat or a manual control. Model 14 measures only 18 in. wide by 24 in. high. Model 20 is 18 in. wide by 38½ in. high.



Manufacturer: Stewart-Warner Corp., 1826 Diversey Parkway, Chicago, Ill.

GAS WALL HEATER delivers warmth on both sides of partition, furnishes economical, efficient small home heating.

As their contribution to the Economy Housing Program, Holly Mfg. Co. has introduced a new vented gas heater with an input of 25,000 Btu. This unit installs in a standard 4 in. wall with studs 16 in. o.c. and heats rooms on both sides of the partition. Its roughing-in dimensions are only 14 x 50½ in. and as it mounts off the floor any floor covering treatment can be used. Outstanding features of "Dual 25" include low initial cost, economical installation, efficient and safe operation. The heating element, completely enclosed behind the smartly designed wall panel always remains safely cool. Cold air is drawn off the floor by a return air duct hidden under the wall panel. "Dual 25" meets A.G.A. requirements for heaters over 20,000 Btu input, is adaptable to natural, manufactured or L. P. gas.



Manufacturer: Holly Mfg. Co., 875 South Arroyo Parkway, Pasadena 2, Calif.

(Continued on page 174)



Pella
ROLSCREENS
FIT ALL TYPES and MAKES OF WINDOWS

ROLSCREENS provide freedom from screen troubles! Once in place, always in place. No putting up — no taking down! No painting! No seasonal repairs! No storage space required. By minimizing window screen maintenance, ROLSCREENS pay for themselves over the years.

The exterior beauty of windows is preserved by ROLSCREENS because they are made of neutral colored AluminA wire cloth and installed on the **inside.** ROLSCREENS cost no more than good quality flat-frame screens. When annual maintenance and labor costs are considered, ROLSCREENS actually cost less than ordinary screens.

Made by makers of
FAMOUS PELLA VENETIAN BLINDS and CASEMENT UNITS

10-YEAR GUARANTEE assures that clients will be satisfied with ROLSCREEN performance.

ROLSCREEN DETAILS IN HANDY FILE PACK for installing on all types and most makes of windows. Ready for tracing right onto your plans.



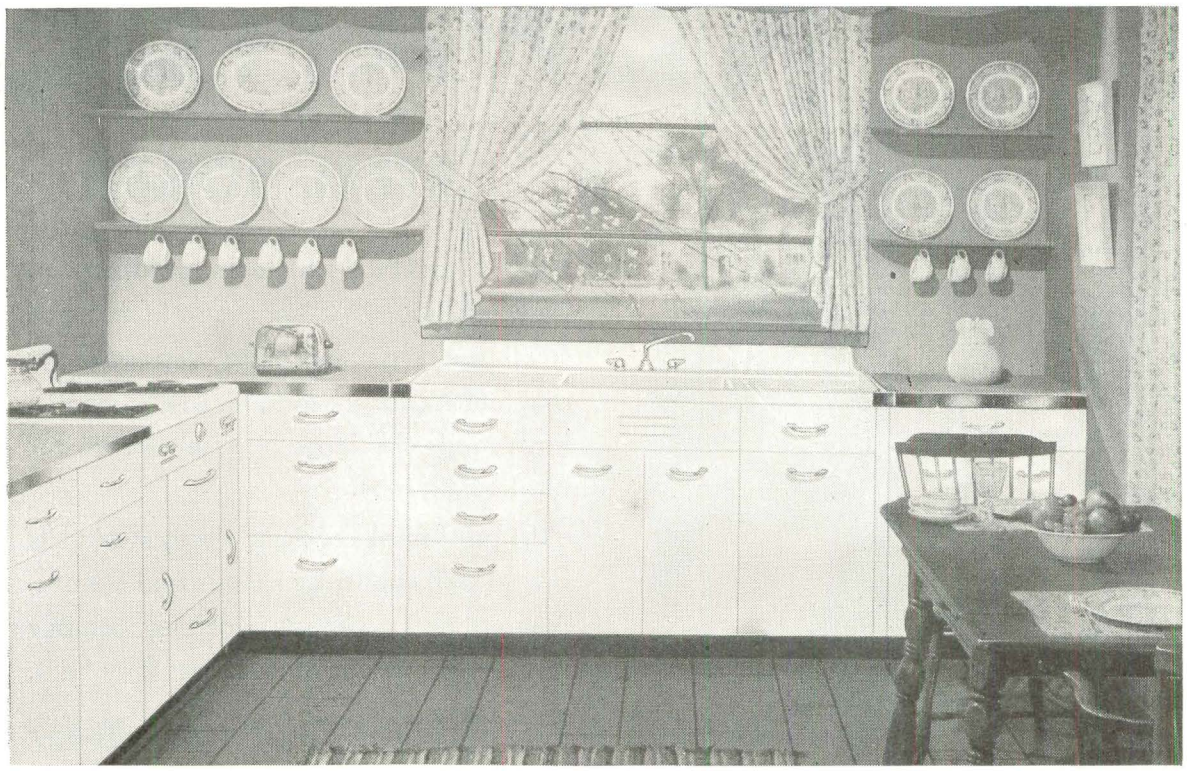
MAIL COUPON

ROLSCREEN COMPANY,
Dept. A-20, Pella, Iowa.

Without obligation, please send FREE new file of ROLSCREEN details and specifications in A.I.A. folder.

Name _____
Firm Name _____
Address _____
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ANY SIZE kitchen



The Crane Sunnycrest Sink, single basin, double drainboard

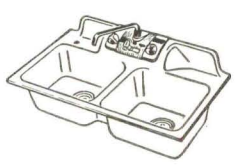
...IS A CRANE SIZE KITCHEN

Crane sets no limitations on size or style. There is a Crane sink for the modest kitchenette as for the elegant living-kitchen—a truly complete line.

No doubt that it's the *preferred* line . . . home owners have testified to this year after year.

That's true, of course, of Crane bathrooms, too—and here again you'll find a style for every taste, a price for every budget. In home heating, Crane supplies everything required for any system, any fuel.

For selections, see Sweet's Builders' File or Crane Service for Architects—check your requirements early with your Crane Branch or Crane Wholesaler.



THE ALL AMERICA — *America's finest counter-top sink, 38" x 21". Has all the features of Crane cabinet sinks—8" deep basins . . . retractable hose spray . . . 4" high shelf back . . . exclusive Crane* Dialese *controls.*



THE KITCHEN QUEEN—*and fit for a queen! Double basin, double drainboard, all gleaming white porcelain enamel, 72" x 25¼". Retractable hose spray. Crane supplies automatic dishwasher, disposal unit if desired.*



THE HOMEMAKER—*just right for space-saving! Only 42" x 25¼", it boasts a deep, full basin and plenty of cabinet space below. Also from Crane: wall and base cabinets to complement the sink.*

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RESIDENTIAL PLUMBING

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO 5

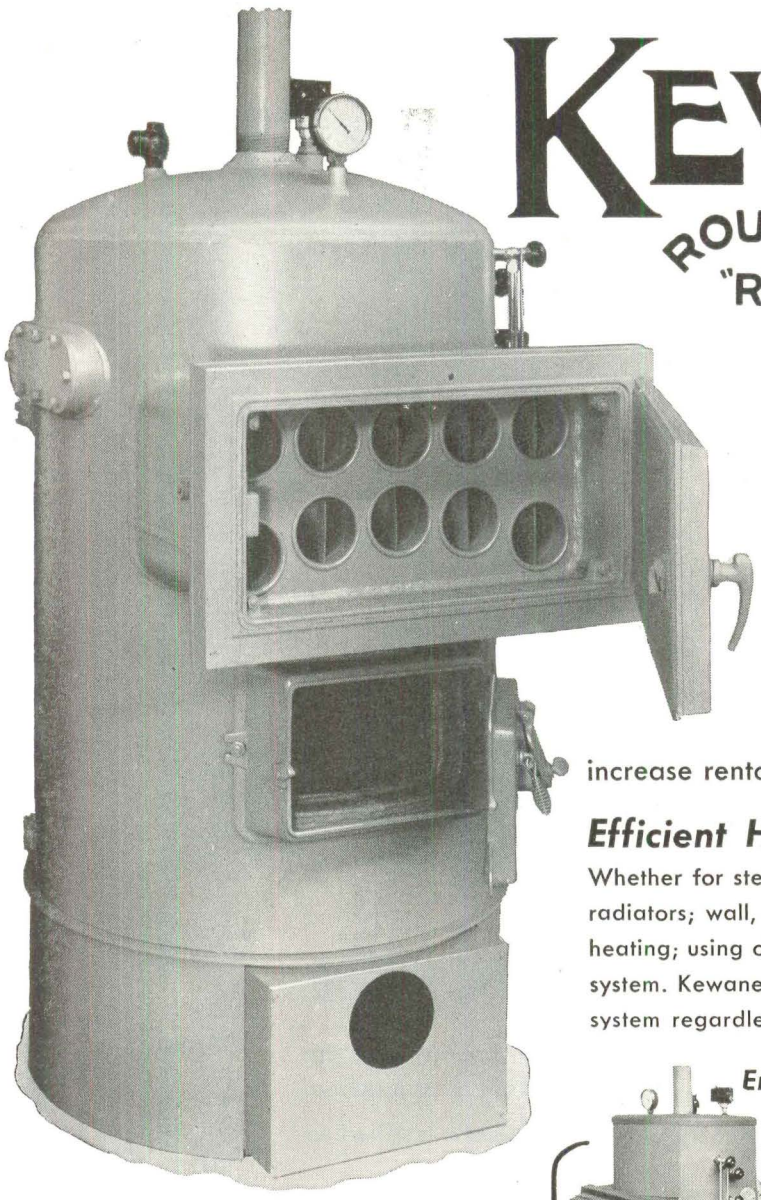
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ROUND "R"® **STEEL BOILER**



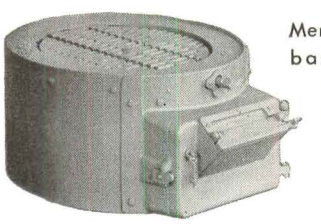
For 275 to 900 sq ft steam radiation . . . Kewanee Round "R" brings to homes and small buildings the extra dependability and fuel economy which, for over 80 years, have made the large sizes preferred for big heating jobs.

The advantages of these sturdy steel units are so well known by renters and owners, builders and architects that they actually increase rental and selling values of buildings they heat.

Efficient Heating STARTS with the Boiler

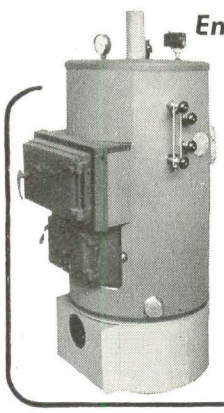
Whether for steam or forced hot water circulation in conventional radiators; wall, floor or ceiling panels; or for radiant baseboard heating; using oil, gas or coal; a good boiler is the "heart" of the system. Kewanee Type "R" is the ideal team-mate for any heating system regardless of the type or grade of fuel used.

To Switch to Hand-Firing

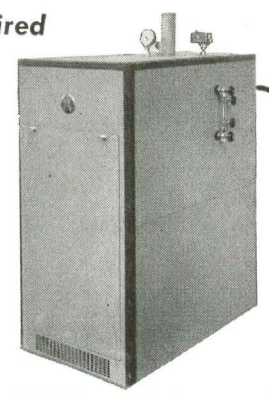


Merely substitute this base with its coal grates. No change is needed in the boiler proper.

Enclosing Jackets If Desired



Square jackets enclosing the insulated boiler and burner and Round insulated jackets . . . both in two-tone steel . . . add to over-all economy and give the basement that "new look" which often determines the boiler selection.



KEWANEE BOILER CORPORATION

BOILERMAKERS 80 YEARS KEWANEE, ILLINOIS

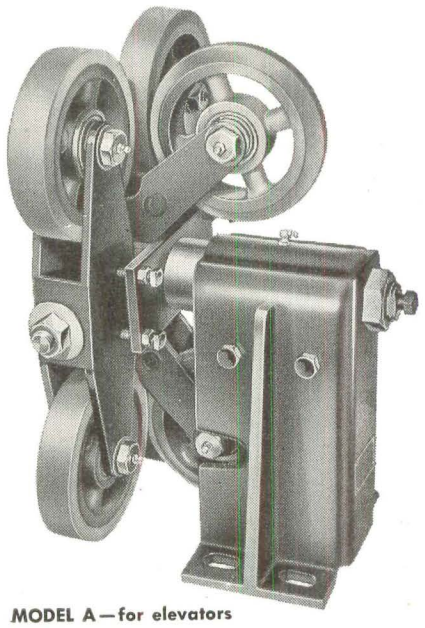
Branches in 60 Cities—Eastern District Office: 40 West 40th Street, New York City 18

Division of American Radiator & Standard Sanitary Corporation

Serving home and industry

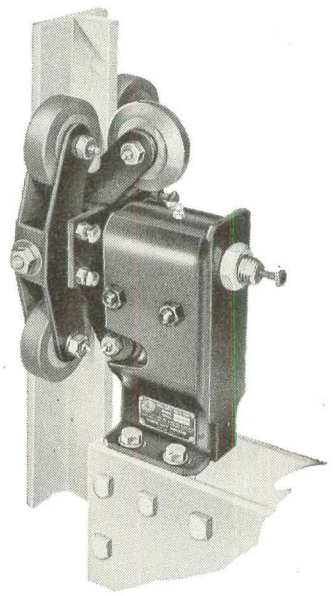
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MODEL A—for elevators

ON YOUR ELEVATORS



MODEL C—for counterweight and low rise, low speed elevators

RESULTS HAVE BEEN AMAZING

1. The greatest fire hazard in your building may now be completely eliminated.

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Dry rails and shaftways are now the recognized modern and only proper way of elevator operation. It is common knowledge that in the event of fire, elevator shaftways with inflammable oil and grease act like flues and help the rapid spread of fire. Modernize your elevators so that you may save life, property and money.

Elsco Safety Roller Guides have now been in operation since 1941. They have been approved unanimously by the Board of Standards and Appeals of New York City. They have been installed in leading buildings from coast to coast and abroad. They are the only safety roller guide with oscillation, traction and knee-action.

(Patented and Trade Mark Registered)

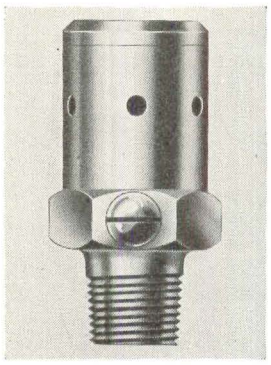
For Further Information Inquire of your dealer or

ELEVATOR SAFETY CORPORATION

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165 Broadway, New York City 6, New York

BUILDING REPORTER



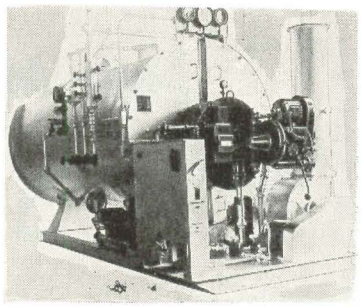
EASILY INSTALLED AUTOMATIC AIR VALVE for hot water heating systems vents air, does not leak.

Ever since hot water heating was introduced, it has been necessary to vent air from the radiators. Now, with the Taco-Vent automatic hot water air valve the manufacturer promises manual venting can be eliminated. Operating automatically, Taco-Vent can be installed on radiators, baseboards or convectors by merely screwing into the tapping. No adjustment is necessary and no leaking or clogging will occur. The new valve incorporates a special filter, porous bronze plug, special fiber discs and vent holes. Air collecting at the ⅛ in. connection passes through each of these filters to the atmosphere. Water following the air is cleaned of all foreign matter by the special filter, is "slowed up" by the porous bronze plug. When it reaches the special fiber discs, it causes them to swell, completely sealing the valve. As more air accumulates the special fiber discs dry and shrink, permitting the valve to again vent. Reported to be inexpensive, the manufacturer claims that Taco-Vent will pay for itself in fuel savings.

Manufacturer: Taco Heaters, Inc., 137 South St., Providence 3, R. I.

COMBINATION PACKAGED STEAM GENERATORS permit quick fuel change-over.

Preferred's new combination oil and gas unit steam generators, ranging in size from 20 to 500 h. p. and pressures from 15 to 200 lbs., feature easy change-over from gas to oil firing, or vice versa. They offer fully automatic operation from high to low fire with all grades of commercial gas and oils, including Bunker C and No 6 oil. The change-over from oil to gas, in units employing a horizontal rotary oil burner (units of 70 to 500 h. p.), requires only a few minutes. This is accomplished by swinging the oil burner open and inserting the primary gas burner in the normal oil burning firing port. The primary burner is adjusted to handle 25 to 30 per cent of the total maximum heat input and is supplemented by a main gas burner in the form of an annular ring which is always in place inside the furnace extension. This arrangement of a primary and secondary gas burner utilizes the full cross sectional area of the combustion chamber, thereby providing distribution of the gas-burning flame in the fire box and the furnace. A combination unit for the sizes from 20 to 70 h. p. which normally use a pressure atomizing type oil burner rather than the horizontal rotary type is also available.

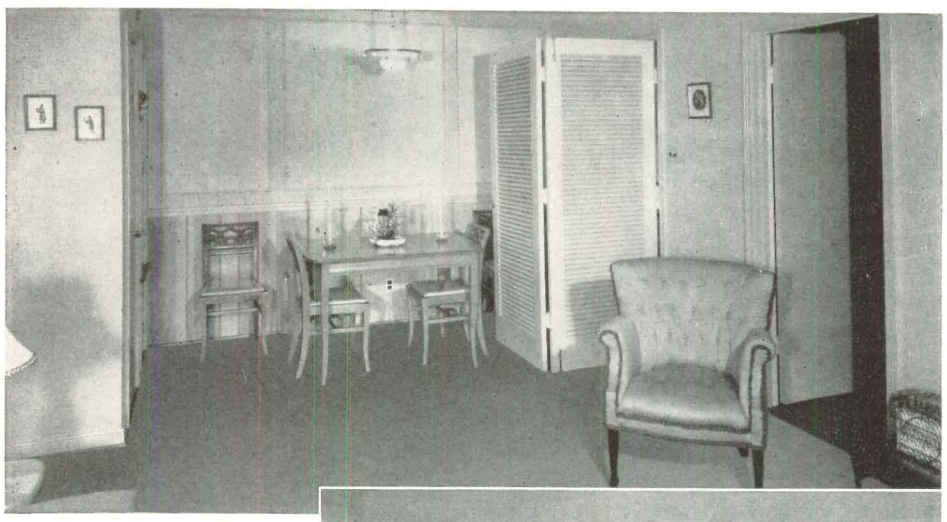


Manufacturer: Preferred Utilities Mfg. Corp., 1860 Broadway, New York 23, N. Y.

KEY DEVICE forms lathless mechanical bond between concrete and plaster, reduces construction costs.

Kifs, which are daisy-size, elastic button-like knobs for forming a keyed plastering surface on concrete, are designed to save construction time, money and space. Nailed onto wooden concrete forms about 6 in. apart before the pouring operation begins, they leave undercut, cone-shaped cavities when the forms are removed. Plaster squeezes into these cavities, forming a keyed, permanent, mechanical bond between the concrete and plaster. In large buildings, the Kif method reportedly cuts the per yard plastering cost nearly in half by eliminating the need for metal lath, channels and hangers. Also, by eliminating plastering on suspended metal lath, approximately 4 in. of building height are saved for each story. In place of the ¾ in. to 1 in. of plaster normally used on metal lath, the Kif *(Continued on page 178)*







Kitchen convenience and roomy living in compact apartments

With folding doors closed, the Murphy - Cabranette Kitchen is entirely concealed.

With doors opened as shown, the kitchen is ready for convenient cooking but concealed from view from the living room.

This installation is one of eight in a Houston, Texas apartment building. Planned by S. H. Dixon of Houston. Built and operated by the Braeswood Building and Development Company.

MURPHY - CABRANETTE KITCHENS

Gas or electric range of approved design. Electric refrigerator with push-button door and stainless steel frozen food compartment. One-piece sink and range top. Storage cases. All streamlined into one compact unit.

Vitreous porcelain on exposed surfaces; never requires repainting; washes clean with soap and water. Trouble-free operation and negligible maintenance proven in more than 25 years of service in rental properties. Write for new bulletins.

DWYER PRODUCTS CORPORATION
Dept. F4 — MICHIGAN CITY, INDIANA

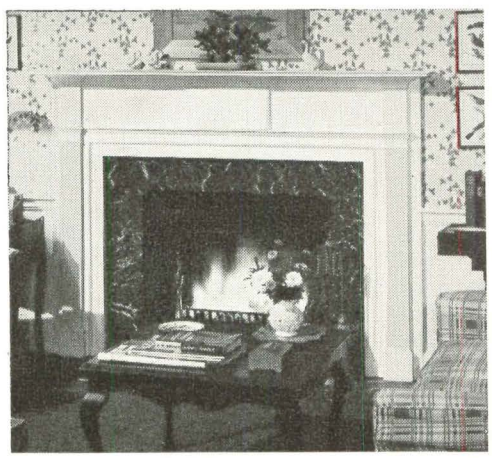


THESE CURTIS "READY-MADES"

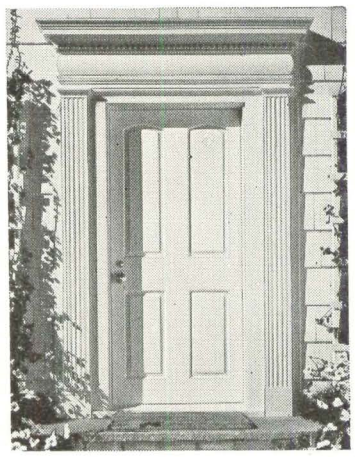
help you whittle down

BUILDING COSTS

When stock design woodwork achieves custom-built distinction—at lower cost—that's news for today's home planners and home builders! And that's why Curtis Woodwork is used so extensively in giving home-owners "more for their money." For Curtis Woodwork makes excellent design and quality construction available for any size or type of home. Here are a few reasons why:



You can give any room the proper focus without expensive special millwork. This Curtis mantel, for example—Design C-6040—has a pleasing simplicity which gives it dignity and beauty. Designed for Curtis by Cameron Clark, Architect.



You can see the sure touch of a master designer in this charming Curtis entrance—Design C-1730. H. Roy Kelley, Architect. Curtis entrances assure lasting value and beauty.



A fine cabinet for the home owner who wants something out of the ordinary—Curtis Design C-6515. The Architect was Russell F. Whitehead. Curtis offers 18 styles of cabinets.

A NEW Curtis Development—

PRESPINE

Developed after years of research and testing, Curtis Prespine is a new wood material for use in panels in Curtis doors and as an integral part of other Curtis Woodwork. Prespine has a hard, satin-smooth surface that takes paint and other finishes beautifully. Tough and durable, Prespine will not warp, check or splinter. It is 93% wood—and resembles in color the species wood from which it is made. Picture on right shows the beauty of Curtis doors with Prespine panels.



When in New York, visit the Curtis Woodwork Display at Architects' Samples Corporation, 101 Park Avenue.

1866 CURTIS WOODWORK

MAIL COUPON for complete information

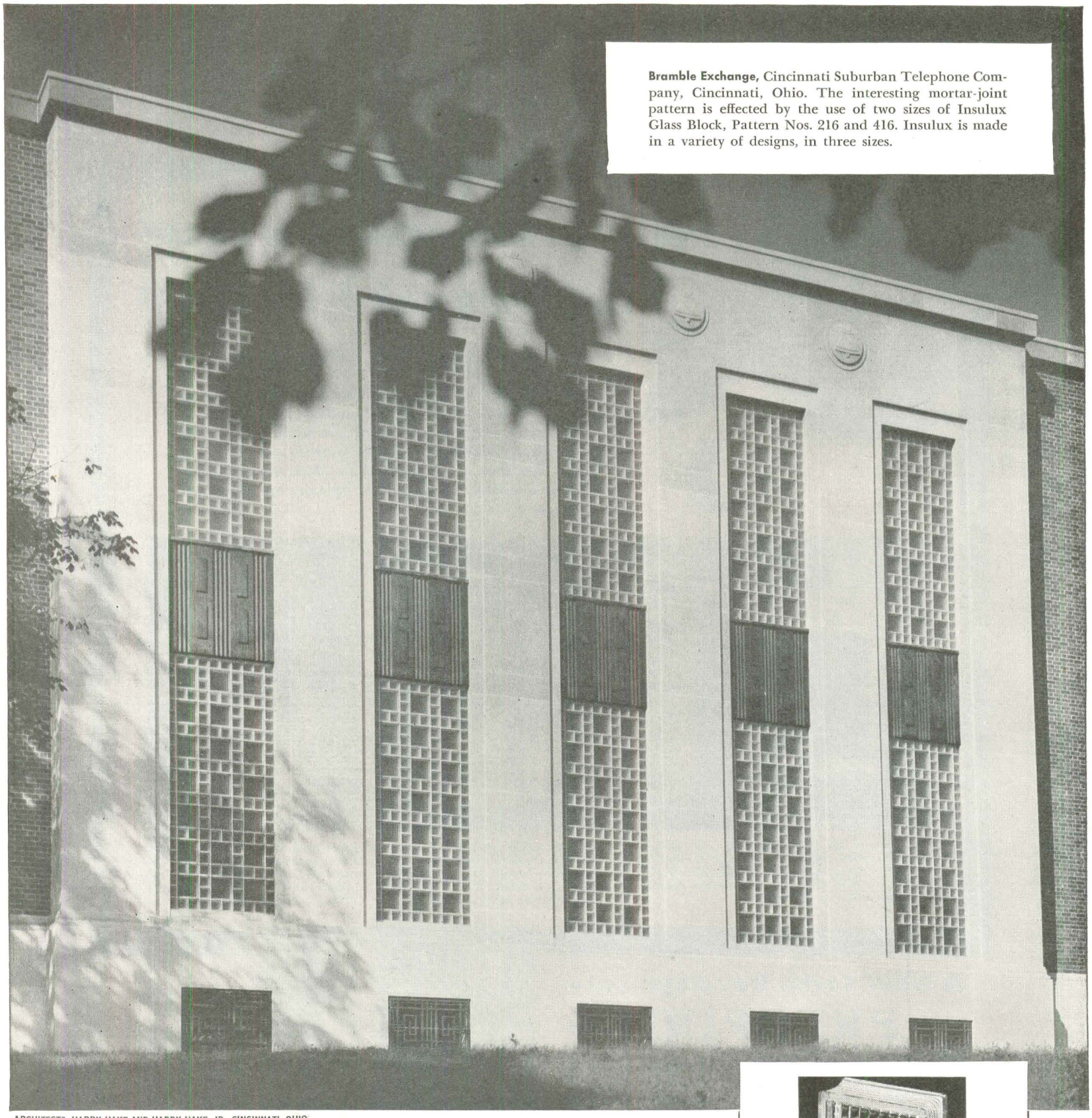
CURTIS COMPANIES SERVICE BUREAU
AF-4W Curtis Building, Clinton, Iowa
Gentlemen:
Please send me your book on Curtis Stock Architectural Woodwork.

Name.....

Address.....

City.....*State*.....

I am ( ) Architect, ( ) Contractor, ( ) Prospective Home Builder, ( ) Student. Please check.



Bramble Exchange, Cincinnati Suburban Telephone Company, Cincinnati, Ohio. The interesting mortar-joint pattern is effected by the use of two sizes of Insulux Glass Block, Pattern Nos. 216 and 416. Insulux is made in a variety of designs, in three sizes.

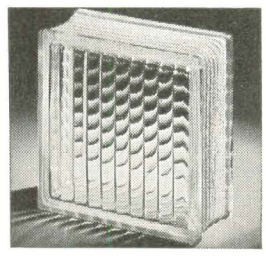
ARCHITECTS: HARRY HAKE AND HARRY HAKE, JR., CINCINNATI, OHIO

Functional daylighting . . . and design:

Imaginative use of Insulux Glass Block combines functional daylighting with attractive appearance. In this building, Insulux provides ample daylight and helps protect delicate telephone circuits from the ravages of dust, dirt and moisture.

Insulux Glass Block is a versatile building material. It transmits light, insulates, and reduces transmission of noise. Unusually easy to maintain, it never requires paint and is free from rot, rust and corrosion.

For technical data and installation details, consult GLASS section of Sweet's Architectural Catalog, or write Dept. F-16, American Structural Products Company, P.O. Box 1035, Toledo 1, Ohio.



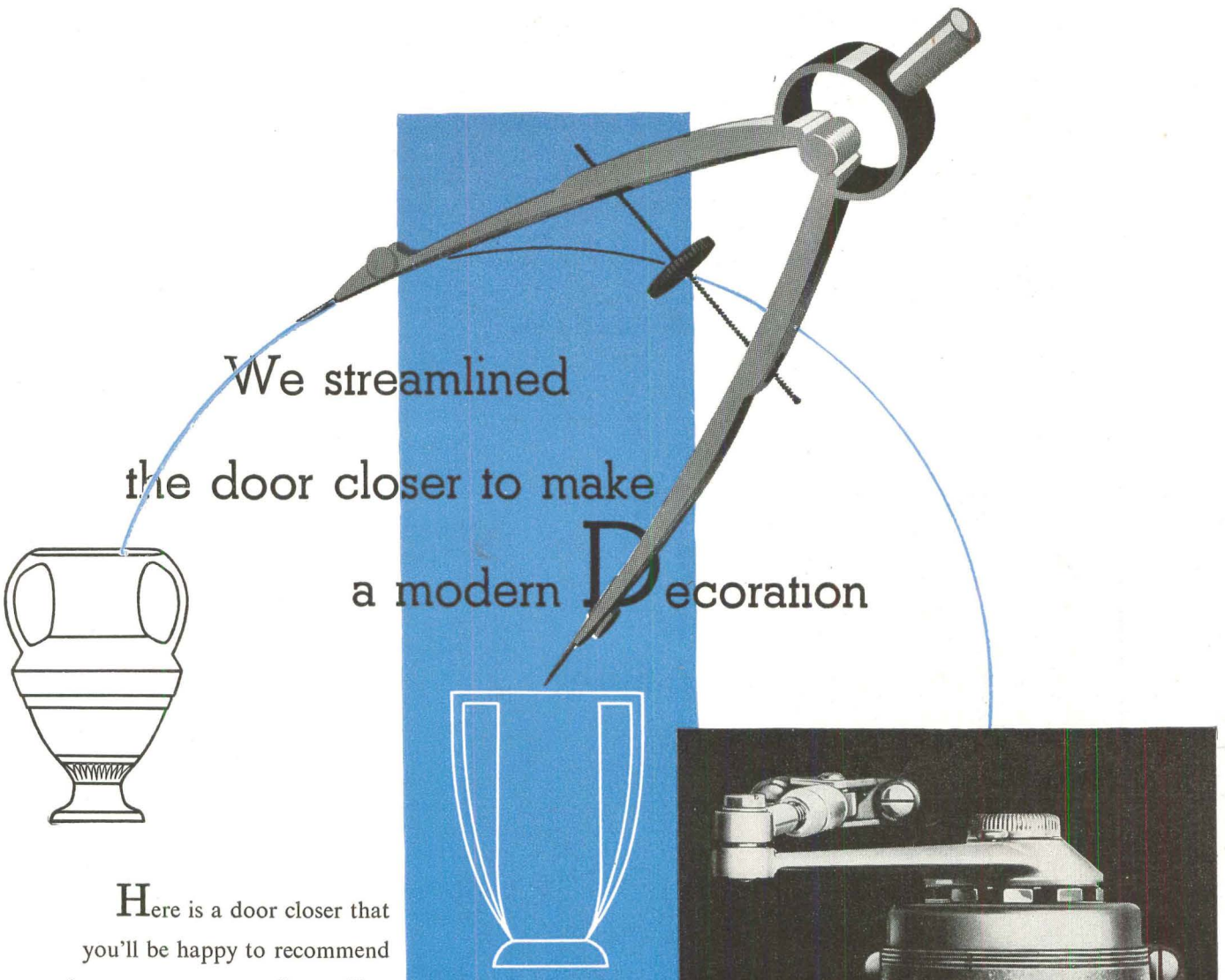
INSULUX

GLASS BLOCK ®

AMERICAN STRUCTURAL PRODUCTS COMPANY

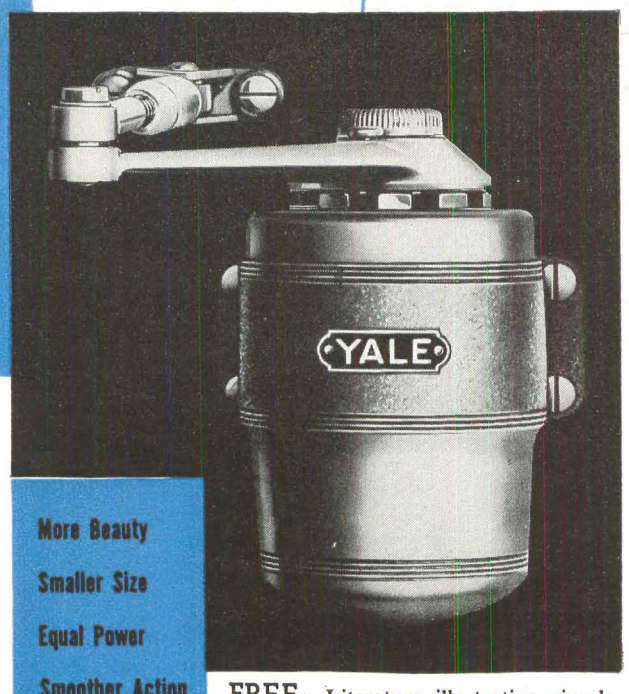
Subsidiary of

OWENS-ILLINOIS GLASS COMPANY



We streamlined
the door closer to make
a modern Decoration

Here is a door closer that you'll be happy to recommend for appearance as well as utility. The new YALE COMPACT DOOR CLOSER represents the modern concept of economy of size, minimum of detail and smoothness. We've reduced the bulk 36%, simplified the detail and eliminated the bulges. Even the brackets have been modernized. *Rotary piston checking* improves efficiency while making the new beauty possible. It gives an even circular stroke; continuous checking action, with simple two-speed closing adjustment. Leading builder's supply dealers are displaying the YALE COMPACT DOOR CLOSER. See it—specify it.



More Beauty
Smaller Size
Equal Power
Smoother Action
Same Price

FREE: Literature illustrating simple operating method, famous YALE workmanship, "hold-open" device, etc. *Mail* coupon now.

TRADE **YALE** MARK
compact
door closer

THE YALE & TOWNE MFG. CO.
STAMFORD, CONN.
Please send me free 2-page description and "The Inside Story" on YALE COMPACT DOOR CLOSER.

Name.....
Company.....
Address.....
City.....Zone.....State.....

method uses only ¼ in. to ⅜ in. thickness to further reduce costs. In other applications Kifs may be attached to all sides of beams and column forms for preparing all surfaces for plastering. In precast concrete homes, they may be used in such a way that interior walls are readied for plastering while the exterior is readied for stuccoing. Another possible application for Kifs includes their use for unplastered acoustical ceilings. Kifs are to be available at once in principal cities on a rental basis.

Manufacturer: Buffalo Products Inc., 315 Babcock St., Buffalo, N. Y.

STRUCTURAL INSULATING BOARD with acoustical properties hastens construction.

Designed specifically to effect construction economies, NEFCO SI board is suitable for erecting non-load bearing walls, roof decks, ceilings and interior partitions in homes, offices, farm buildings or factories. A new material made from selected wood fibers, rigidly bonded with Portland cement, it is supplied in 2 x 9 ft. panels in 1 in., 2 in. and 3 in. thicknesses. Incombustible and economical, it provides high acoustical value, light handling weight, good plaster bond and painting surface. It can also be worked with ordinary carpenter's tools. When used for interior partitions, SI board requires only simple framing to produce a sturdy, insulating, noise reducing wall. When used as a roof plank, it supplies a fireproof roof deck for built-up roofing, thermal insulation and an acoustical ceiling treatment in a single material. A 2 in. thick slab spans 4 ft., has a thermal insulation value of .28 and a noise reduction coefficient of .75. The new board is light gray, cement color.

Manufacturer: The New England Fibre Co., 2301 Maryland Ave., Baltimore, Md.

GLASS FIBER INSULATION with high thermal efficiency is very light in weight.



Ultralite is a new glass fiber blanket type insulation that combines high thermal efficiency and extremely light weight. Only 3/10 the weight of ordinary mineral fiber insulations, the new material will not shake down, pack, settle or disintegrate. After being compressed, it springs back into its original shape. The inorganic blanket is fireproof, rotproof and verminproof, and will not absorb moisture or odors.

Manufacturer: Gustin-Bacon Mfg. Co., 1412 West 12th St., Kansas City, Mo.

REDWOOD PLYWOOD is usable for interior and exterior paneling.

Introduced after a four year experimentation period, M & M's redwood plywood combines the desirable characteristics of redwood and the practical advantages of plywood. Redwood is naturally a durable wood. The new plywood, however, has increased density and hardness and in addition, is splitproof due to the cross-ply construction. Other advantages of the new plywood include: lightness (15 to 20 per cent lighter than fir plywood), less shrinkage than in other woods, natural durability and resistance to decay and insects. It also offers superior weathering and painting.

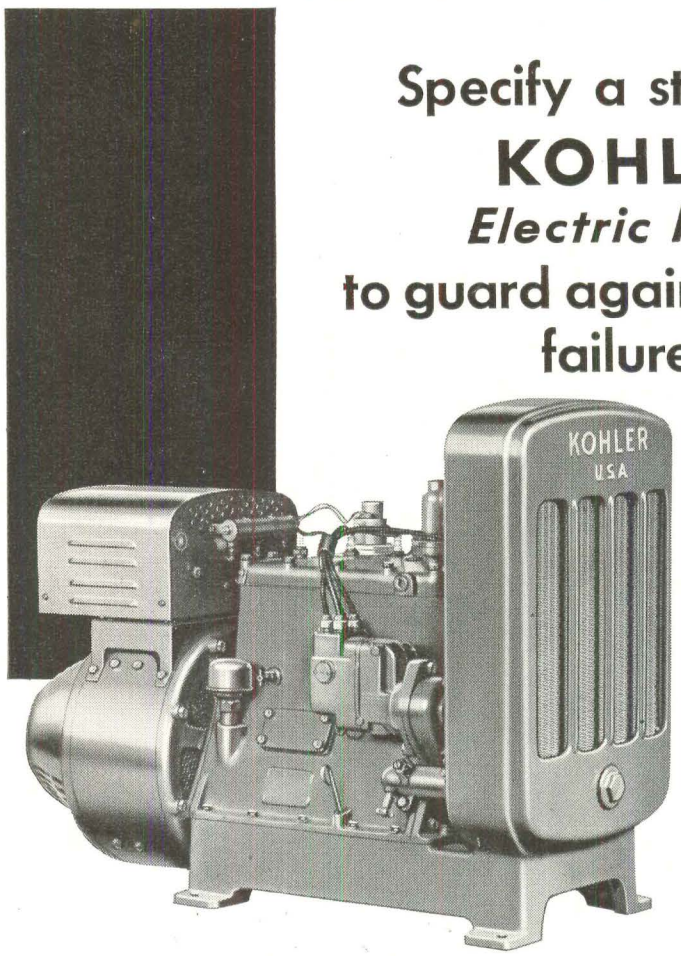
Ready markets are foreseen for the new product. First among these is its use for interior and exterior paneling and use on pleasure cruisers. Other applications indicated are: transportation uses, farm equipment, heat exchangers, signs and displays, core stock for hardwood-faced plywood, or laminated, plastic faced plywood. Redwood plywood is being produced in all standard plywood dimensions.

Manufacturer: M & M Wood Working Co., 2301 North Columbia Blvd., Portland, Ore.

TWO HARDWOOD PLYWOODS are introduced by U. S. Plywood Corp.

Korina, a new African hardwood finished plywood and gum Weldtex, the first striated hardwood plywood, are recent additions to U.S.P.'s line. Made of *(Continued on page 182)*

Specify a stand-by
KOHLER
Electric Plant
to guard against power failures



Kohler Electric Plant 3A21, 3KW, 115 volt AC. Automatic start and stop. Length 41", Width 16", Height 27¼".

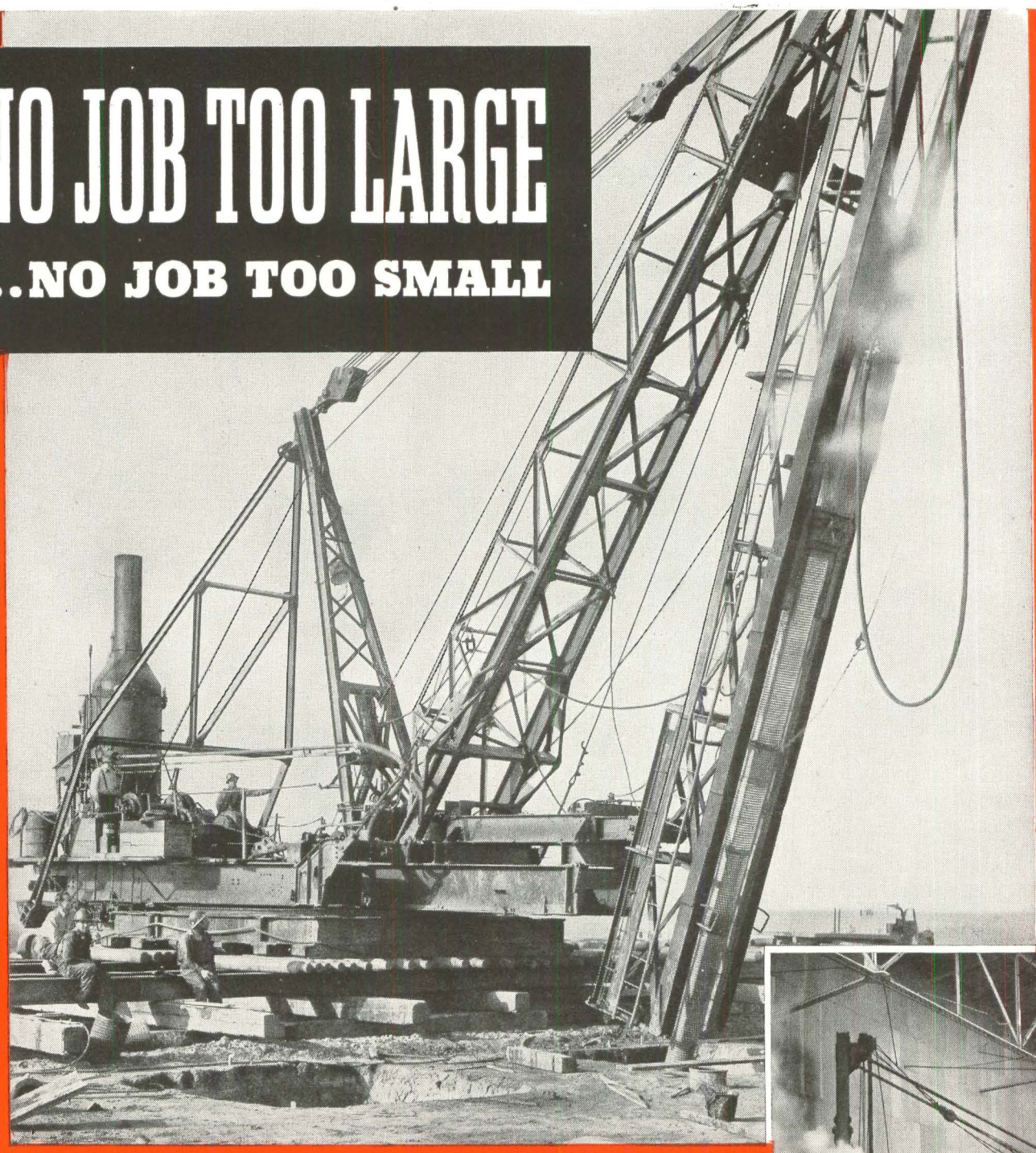
BY including a stand-by Kohler Electric Plant in your specifications you'll provide a vital safeguard against failure of central station electric current so often caused by storms and accidents. When light and power go off in hospitals, schools, stores, theatres, municipal buildings, homes and other places, Kohler Electric Plants take over the load automatically—safeguarding life and property.

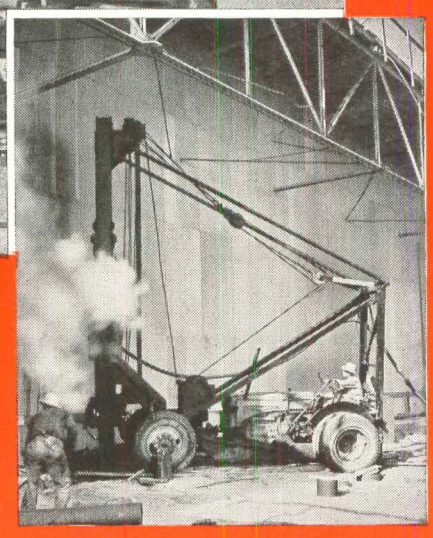
Kohler Electric Plants are reliable, economical, easy to install and care for. Sizes, 750 watts to 10 KW. A Kohler field organization is available to help you determine the most practical installations for specific needs. Write for illustrated folder E-18, Kohler Co., Kohler, Wisconsin. Established 1873.

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PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS

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AROUND THE WORLD

From a job of a few piles to one requiring many thousand piles, from a single caisson to a skyscraper foundation, from a simple soil investigation to a complete port development—no job is too large or too small for the Raymond organization. Specialized equipment, broad experience and highly trained personnel are your assurance of dependable work at minimum cost. Your inquiry will receive prompt attention.

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SCOPE OF RAYMOND'S ACTIVITIES includes every recognized type of foundation construction—concrete, composite, precast, steel, pipe and wood piles. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements and borings for soil investigation.



Maurice L. Rothschild & Company, Evanston, Illinois, • Taussig-Flesch Associates, Chicago, Designers

WOOD... Stimulant to Sales

Where discriminating people shop, the atmosphere of quality that beautiful woodwork imparts is a potent stimulant to sales. That is why wood, beautifully formed and finished, is a basic element of any interior designed for selling. It is well to remember that two generations of outstanding architects and store designers have looked to the craftsmen of Woodwork Corporation for faithful reproduction of their ideas. Creative men have always appreciated the Woodwork policy of adhering precisely to details. Discriminating people have approved the results, not only in retail establishments, but in a long list of hotels, clubs, dining rooms, office suites and churches noted for their beautiful wood interiors. Whether your plans involve a complete interior, or a single display case Woodwork craftsmen and executives are prepared to meet your needs. Your inquiry will receive immediate attention and a prompt reply.

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WOODWORK CORPORATION OF AMERICA

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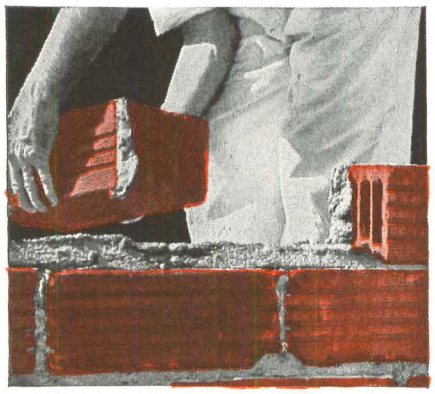
GET BETTER TILE AND BLOCK-WORK with BRIXMENT!

Tile or block-work offers very little protection against the penetration of water, unless both inside and outside head joints are completely filled with mortar.

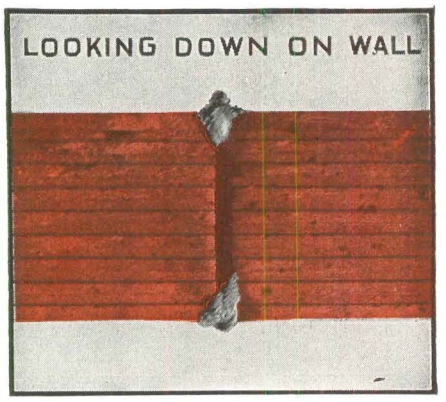
In laying clay tile, or concrete or cinder block, even when they are used only for back-up work, especial care should be taken to secure full head joints on both the inside and the outside edges of the unit. Either of the following two methods may be used:



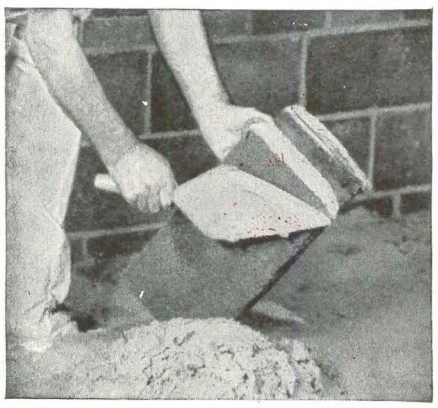
Method 1. Full head joints should be thrown onto both edges of the tile to be placed, or—



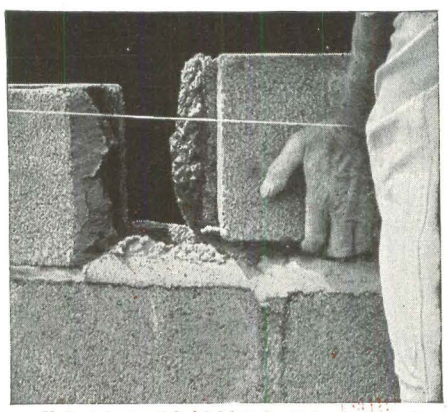
Method 2. A full head joint should be thrown onto one edge of the tile in place and also onto the opposite edge of the tile to be placed.



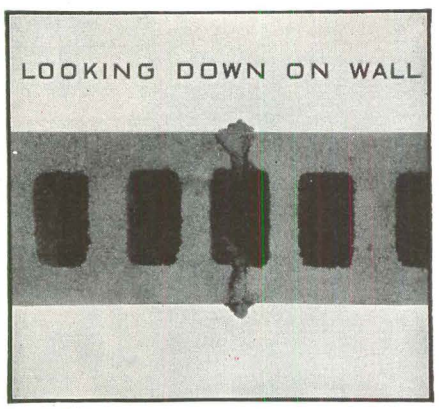
Enough mortar should be used to cause excess mortar to ooze out of the joints on both sides of the tile.



Method 1. Full head joints should be thrown onto both edges of the block to be placed, or—



Method 2. A full head joint should be thrown onto one edge of the block already in place and also onto the opposite edge of the block to be placed.



Enough mortar should be used to cause excess mortar to ooze out of the joints on both sides of the block.

One of the reasons bricklayers prefer Brixment mortar is the way it *sticks* to the tile or block, as shown above. It "stays put." The bricklayer does not have to stoop to the board for more mortar. *You* get a stronger, more water-resistant wall. Brixment mortar is easier to work, saves time, effort, and money. In addition, it has higher water-retaining capacity, greater bonding quality, is more durable. It is this *combination* of advantages that has made Brixment the largest-selling masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

veneers cut from native Belgium Congo logs, Korina features a white color and uniform grain and is one of the cheapest of all decorative hardwood surfaced plywoods. Gum Weldtex is slightly darker in color and a little more expensive than its familiar fir Weldtex sister and offers better finishing qualities than the softwood. Both Korina and gum Weldtex come in regular 4 x 8 ft. panels.

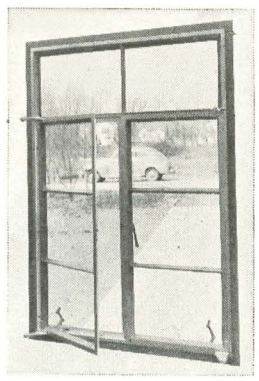
Manufacturer: U. S. Plywood Corp., 55 West 44th st., New York, N. Y.

LOW COST ALL-PURPOSE SHEATHING PAPER doubles as a moisture vapor barrier.

Presstite's new No. 15 All-Purpose Sheathing Paper is a waterproof, dual purpose paper which costs less than the usual saturated but uncoated asphalt felt. A virgin felted Kraft paper, asphalt saturated and coated with a special Gilsonite compound, No. 15 serves as both a sheathing paper and a moisture vapor barrier. Its special coating containing Gilsonite is credited with preventing the shrinkage, mildew and moisture absorption commonly encountered with uncoated materials. Flexible and easy to apply, No. 15 is available in standard size rolls of 432 sq. ft. It is FHA approved as a Class A or B sheet.

Manufacturer: Presstite Engineering Co., 3900 Chouteau Ave., St. Louis, Mo.

STEEL CASEMENT WINDOW with added strength and rigidity is competitively priced.



Selling within the economy bracket of other standard residence steel casements, Steelcraft's new casement window makes strong claims of sturdier more rigid construction. The casements also permit double glazing with thermo-insulating glass. The new unit is fabricated with cold rolled steel sections, 1¼ in. deep. The depth of these sections account for the unit's added strength and rigidity while the cold rolled steel surfaces offer a smooth base for finishing. Steelcraft casements come in a variety of styles and sizes. All are furnished prime-coated, complete with necessary hardware and fittings.

Manufacturer: The Steelcraft Mfg. Co., Rossmoyne, Ohio.

ALUMINUM INTERIOR TRIM also functions as plaster ground, cuts construction time in homes and offices.

Attractive modern appearance, easy installation and savings in both construction labor and time are the main features of Altrico trim. This new line includes prefabricated door frames, baseboards and window trim made from extruded aluminum alloy. It is fireproof, sanitary and non-warping, and is installed before plastering, or as soon as the structure is roughed-in. Altrico door frames are prefabricated to any size opening required. They consist of three parts, two jambs and the header, and include hinge locations, lock striker, screw and nail holes.

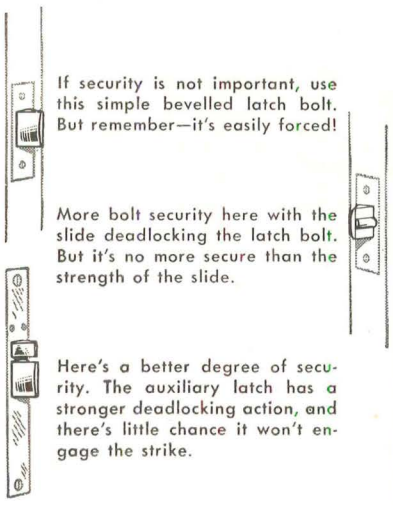
Installation is simple. The units are merely nailed to the door opening as framed by the studs. Once installed, there is no bulky trim to break the smooth line of the walls. Altrico window molding is used with wood window construction and is installed to the window jamb. It not only eliminates the need of wood trim but also serves as a plaster ground. Altrico baseboard is nailed to the studs before plastering. Its ledge then also becomes the plaster ground. Altrico trim is supplied in standard sizes and can be painted if desired.

Manufacturer: Alloy Trim Inc., 217 West Seven Mile Rd., Detroit 3, Mich.

SECTIONAL CABINETS can be grouped into attractive arrangements to solve numerous storage problems.

Carr, Adams & Collier's line of Nu-Style cabinets includes standard sectional storage units for creating storage walls and other individual storage arrangements. Smooth but unfinished Ponderosa pine units, they can be combined into many varying and attractive *(Continued on page 186)*

How to select the bolt your locking job needs



If security is not important, use this simple bevelled latch bolt. But remember—it's easily forced!

More bolt security here with the slide deadlocking the latch bolt. But it's no more secure than the strength of the slide.

Here's a better degree of security. The auxiliary latch has a stronger deadlocking action, and there's little chance it won't engage the strike.

WHEN the time comes to specify hardware, only a few people ever really look at all sides of the bolt question . . . ever fully consider the duties of a bolt.

At Lockwood we make many kinds of locks and locksets, advocating types designed for the degree of service and protection desired. We firmly believe that every bolt has its particular place . . . *and that a lock is only as good as its bolt.* That's why we say: *For security and protection be sure you specify adequate bolts!*

Use Dead Bolts- to be sure..



This bolt is made for *real* security. The half inch throw dead bolt is a challenge to jimmiers. ***Use dead bolts to be sure!***

For even more protection, use this dead bolt with one inch throw. Even badly shrunken doors offer plenty of security with long-throw bolts. ***Use dead bolts to be sure!***

This is the granddaddy of all dead bolts—one inch throw with hardened steel roller inserts that absolutely defy any cutting action. ***Use dead bolts to be sure!***

Lockwood

22A

HARDWARE MFG. COMPANY, *Division of*
INDEPENDENT LOCK COMPANY, FITCHBURG, MASSACHUSETTS



OPTICALLY CLEAR PLEXIGLAS WEIGHS 52% *LESS* THAN GLASS!

Have you ever wished for a material as clear as fine glass, but only half as heavy? Strong enough to withstand a hard blow or a heavy load? Then stop wishing; here's PLEXIGLAS.

Think what you can do with this sparkling acrylic plastic—in merchandise and merchandising. In small products or components, in large items like sign faces, skylights, showcases, in a thousand-and-one industrial and building applications, PLEXIGLAS speeds production and whittles costs.

Its easy workability, resistance to sun and weather, gleaming brilliance, color possibilities and ability to "pipe" light make it *the* plastic for indoor or outdoor use.

Our new booklet suggests how PLEXIGLAS can add new lightness, new beauty, new durability to your products. Send for your copy today.

CHEMICALS FOR INDUSTRY

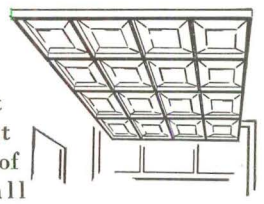
ROHM & HAAS COMPANY

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Representatives in principal foreign countries

Light Weight + Strength + Permanence + Beauty = PLEXIGLAS for Architecture

1. Coffer Lighting



with PLEXIGLAS. Large panels of white translucent PLEXIGLAS, set in the ceilings of large or small rooms, diffuse light from fluorescent or cold cathode tubes with maximum efficiency.

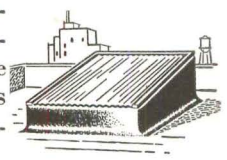


2. Background

for the display of smart fashions, this winding staircase has a gleaming balustrade of curved PLEXIGLAS sheets. True optical clarity allows every detail of modeled clothing to be seen without distortion.

3. Industrial Skylights

of PLEXIGLAS for strength and lightness. Large sheets are used without supporting ribs—insure long, replacement-free service because PLEXIGLAS is weather-and-shatter-resistant.



* * *

For brighter buildings — unusual effects — beauty with practicality — get complete details of PLEXIGLAS today. Write as fully as you wish about specific applications, or use the convenient coupon to ask for our new PLEXIGLAS brochure. Yours without obligation.



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Please send us your booklet, "PLEXIGLAS — AN ARCHITECTURAL MATERIAL."

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Position_____

Company_____

Address_____


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AMERICAN-Standard
First in heating...first in plumbing
Wyandotte
WINTER AIR CONDITIONER
AMERICAN-Standard
...first in plumbing
rst in design...first in demand
Look for this Mark of Merit
THE NEO-ANGLE BATH, unique in beauty and convenience, one of many smart plumbing fixtures in the American-Standard line.
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Collier's
POST
AMERICAN-STANDARD
First in heating ... first in plumbing

in heating and plumbing

You make any home a better value when you build with

AMERICAN-Standard

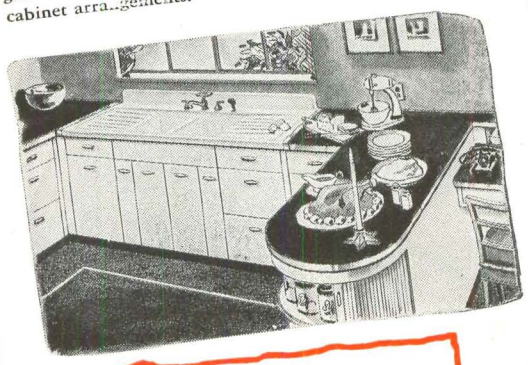
■ The extensive advertising program we are running every month in leading national magazines and farm journals is creating a bigger market than ever for American-Standard Heating Equipment and Plumbing Fixtures. And this strong public acceptance is a big advantage to you who put these quality products in the homes you plan or build.

By featuring American-Standard in your own advertising . . . and by prominently displaying the familiar American-Standard "Installed Here" sign on the job, you tell everyone that only the *best* is good enough for your homes. And, the finer the heating and plumbing your homes have, the greater their value . . . the easier they'll sell.

Your Heating and Plumbing Contractor welcomes an opportunity to give you up-to-the-minute information about the complete American-Standard line. **American Radiator & Standard Sanitary Corporation,** P. O. Box. 1226, Pittsburgh 30, Pa.

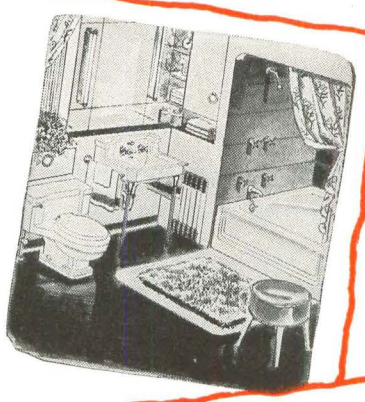
FOR EFFICIENT KITCHENS

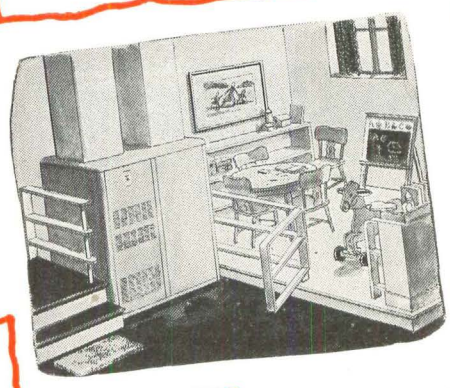
Crowning touch of any kitchen is the Royal Hostess Sink by American-Standard. There's nothing finer. Made in one piece of rigid cast iron with a heavy coating of lustrous acid-resisting enamel, it is built to give years of service. Fits easily into continuous cabinet arra..gements.



FOR BEAUTIFUL BATHROOMS

American-Standard Plumbing Fixtures enable you to achieve many striking effects in bathroom beauty and utility. Shown here are the Neo-Angle Bath, Companion Lavatory and Master One-Piece Water Closet. All come in gleaming white and a wide variety of attractive colors.





FOR COMFORT AND ECONOMY

American-Standard makes heating equipment for every type of heating . . . for every kind of fuel. All units are expertly engineered and ruggedly constructed for efficient and economical performance and long, trouble-free service.

THE SIGN OF A GOOD HOME



An American-Standard "Installed Here" sign on the job tells everone who passes that only the best is good enough for the homes you build or remodel. Be sure your Contractor puts up this sign when he begins the installation.

AMERICAN-Standard
HEATING · PLUMBING

Look for this Mark of Merit

Serving home and industry

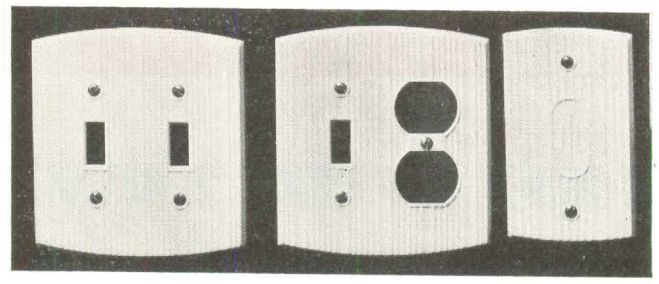
AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

arrangements for use in living rooms, dining rooms, bedrooms and baths, as well as in offices and shops. The Nu-Style line consists of four types of upper units ranging in height from 1 ft. 6 in., to 2 ft. 6½ in.; four types of lower units, 2 ft. 6½ in. high; and two full height, or 6 ft. 8 in. units. All of the cabinets come in numerous widths and can be painted or stained. They are supplied semi-assembled and may be finished with a variety of door and drawer handles.

Manufacturer: Carr, Adams & Collier Co., Dubuque, Iowa.

PLASTIC WALL PLATE LINE includes seven types.

The Rogers Plastic Corp. has recently introduced seven new plastic wall plates in ivory and brown. Each has a vertical design effect that harmonizes with most surroundings. All



can be easily cleaned. The new line includes: tumbler switches in one, two and three gang; combination duplex receptacle and tumbler switch, duplex receptacle, telephone plate and blank plate.

Manufacturer: Rogers Plastic Corp., North Wilbraham, Mass.

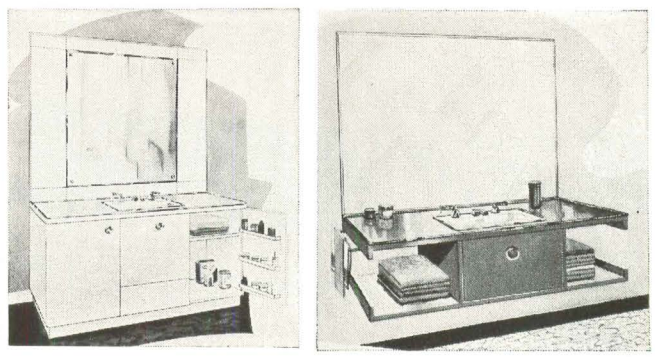
TABLE TOP ELECTRIC WATER HEATER provides additional kitchen work space.

A new table-top Permaglas automatic electric water heater is available in two sizes: 30 and 40 gals. Incorporating the exclusive features of the Smithway Permaglas models, including tanks of glass fused to steel, it is designed with a backsplash that protects the wall and prevents small articles from dropping between the heater and wall. The white Neotone exterior surface can be easily wiped clean and a recessed base allows closer working without scuffing of shoes or heater. This late addition to the familiar line of Permaglas water heaters is U/L approved.

Manufacturer: A. O. Smith Corp., 3533 No. 27th St., Milwaukee, Wis.

COMBINATION LAVATORY-VANITY in numerous designs will be available from Formica fabricators.

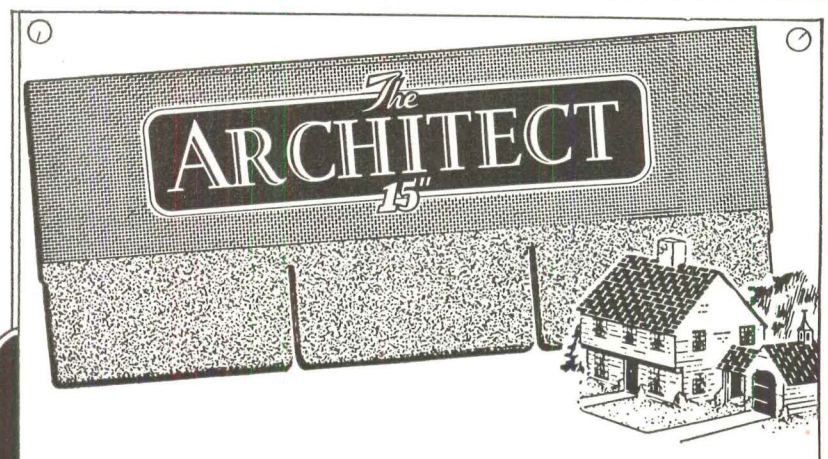
The Formica Co. is sponsoring a new lavatory-vanity combination unit for bathroom use. Trademarked the Vanitory, the unit consists of a rimless wash bowl surrounded by a dressing table surface of colorful, durable Formica. Actually



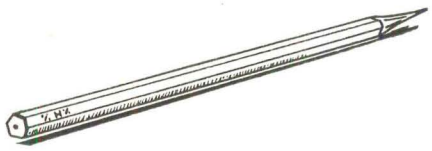
the Vanitory is not a single product but a multiplicity of designs and construction ideas. Formica is furnishing its fabricators details and construction drawings for a variety of designs. In turn the fabricators will offer these Vanitory units as well as custom built units to architects' specifications. Some of Formica's designs include a cabinet backed by a picture mirror, built-in laundry hamper, twin bowls, and a unique medicine chest. Standard procedure calls for laminating Formica sheets onto plywood.

Manufacturer: The Formica Co., 4614 Spring Grove, Cincinnati, Ohio.

(Continued on page 190)



YOU DEMANDED THIS MASSIVE SHINGLE



For a long time architects and builders have been demanding an asphalt shingle with these features: Greater thickness, greater rigidity, greater protection through increased headlap and a longer life span.

HERE IT IS... "The Architect", a new shingle designed especially by Bird & Son to meet the most exacting specifications:

- *Thick massive butts,* approximating slate or wood shingles in caliper . . . heavy shadowlines.
- *Weight 290 pounds per square*... the perfect balance of greater saturation and heavier coating of life-giving asphalt.
- *Triple coverage, 5" headlap* ... Major factors in long-lived protection against standing snow and driving winds and rains.
- *Surfaced with larger mineral granules*... outstanding appearance, better adhesion, longer surface protection.
- *Greater rigidity* because of the heavier felt base, more asphalt and heavy, coarse mineral granules.
- Cost of "The Architect" *is in the asphalt shingle price* range . . . a prime selling feature for this rich, luxurious shingle.

The Architect shingle is presently available only in areas served by our East Walpole plant. Write Bird & Son, inc., Dept. AF-1, 1472 West 76th St., Chicago 20, Ill. for information about our #27 Master-Bilt Shingle with similar quality features:

BIRD & SON inc. Established 1795

On This Building—

KOOLSHADE DOES THE WORK OF 25,000 TONS OF ICE

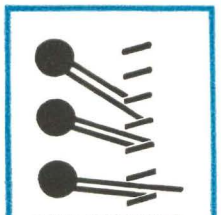


Keep Rooms Up to 15° Cooler All Summer With

KOOLSHADE* *Sun Screen*

KoolShade on 100 square feet of sun-exposed window has the cooling effect of a ton of ice each day. During the long, hot summer KoolShade on a building will give the same cool comfort as a tremendous block of ice.

Insulation against sun heat is a "must" in modern building. Only KoolShade efficiently insulates all glazed areas. This sturdy bronze screen with its paper-thin louvers permanently set at a 17° angle blocks up to 87% of the sun's heat rays outside the window. Visibility from inside is clear and undistorted—better than through ordinary screen. It lets in plenty of clear, glareless light. Reduces heat load, making air-conditioning systems more efficient—less expensive to operate. Mail coupon for sample and literature today.



HOW KOOLSHADE BLOCKS SUN'S HEAT RAYS AT VARIOUS SUN ELEVATIONS

ENGINEERING B/W PRODUCTION

PRODUCT OF BORG WARNER

Advantages of Specifying KoolShade

1. Low maintenance cost—no painting needed.
2. No fire or wind hazard—insurable against damage.
3. Long-lasting—ten-year-old jobs still perfect.
4. Easily installed in aluminum or wood frames.
5. Prevents sun-fading of drapes and furnishings.
6. Gives excellent protection from insects.
7. Unobtrusive—fits every architectural design.

INGERSOLL

KOOLSHADE* *Sun Screen*

*Trade Mark Property of

INGERSOLL STEEL DIVISION • BORG-WARNER CORPORATION

WHAT IS KOOLSHADE?

KoolShade is a sturdy, pre-oxidized, bronze, woven wire with horizontal wires rolled paper thin and permanently set at a 17 degree angle similar to a miniature Venetian blind. Insect protection equal to ordinary sixteen mesh insect screen.

MAIL COUPON FOR FREE SAMPLE

Ingersoll Steel Division
Borg-Warner Corp., Dept. TA-4
321 Plymouth Court, Chicago 4, Illinois

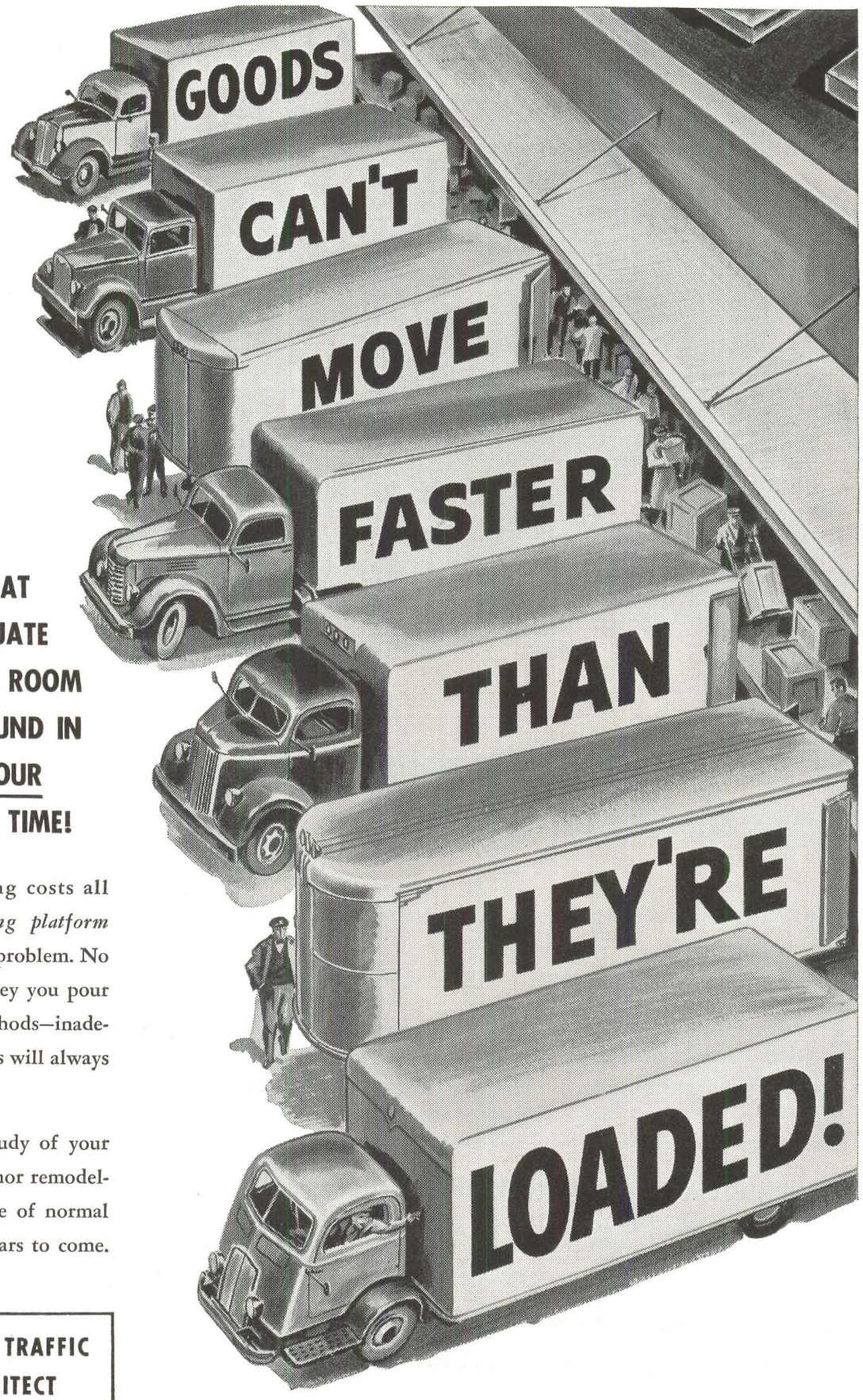
Please send KoolShade sample and descriptive literature.

Name .....

Company .....

Address .....

City ..... **State** .....



TRUCKS THAT HAVE ADEQUATE PLATFORMS . . . ROOM TO MOVE AROUND IN . . . SAVE YOUR DOLLARS AND TIME!

Today, with mounting costs all along the line, *loading platform congestion* is a serious problem. No matter how much money you pour into new tools and methods—inadequate shipping facilities will always eat into your profits.

Right now, make a study of your "bottleneck" areas. Minor remodeling can often take care of normal plant expansion for years to come.

CONSULT YOUR TRAFFIC MANAGER, ARCHITECT AND ENGINEER

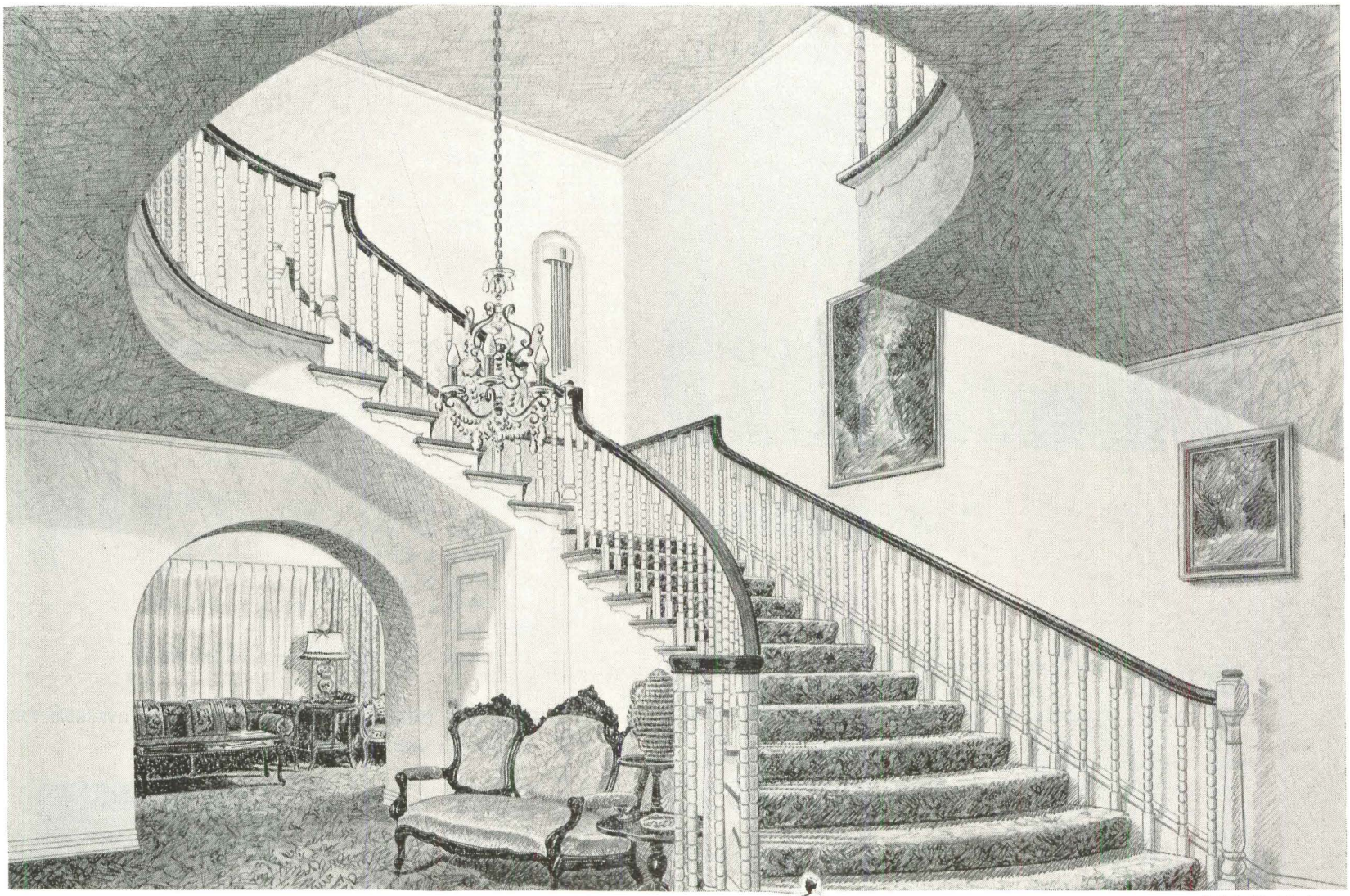
PLEDGED TO COUNTRY'S SAFETY

THE AMERICAN TRUCKING INDUSTRY

AMERICAN TRUCKING ASSOCIATIONS, WASHINGTON 6, D. C.

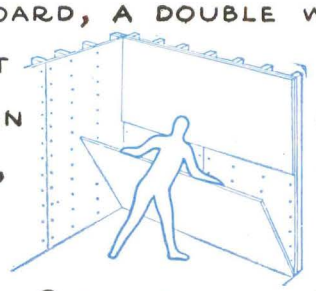
SHEETROCK

specified by Leading Architects



R. D. Suddarth Residence

MANY OF OUR FINEST RESIDENCES OWE A MAJOR PART OF THEIR INTERIOR BEAUTY TO SMOOTH, SWEEPING WALLS AND CEILINGS OF **SHEETROCK**. THIS TREND TOWARD FINER DRY-WALL CONSTRUCTION WILL BE EVEN MORE PRONOUNCED NOW THAT ARCHITECTS CAN SPECIFY THE NEW AND IMPROVED LAMINATED **SHEETROCK** WALLBOARD, A DOUBLE WALL SYSTEM. WITH THIS SYSTEM YOU CAN CREATE WALLS AND CEILINGS THAT ARE EXTRAORDINARY IN STRENGTH, RIGIDITY AND FIRE-RESISTANCE. AND, YOU CAN BUILD AND DECORATE THEM IN DAYS INSTEAD OF WEEKS ! WRITE FOR DETAILS, CHICAGO, 6.

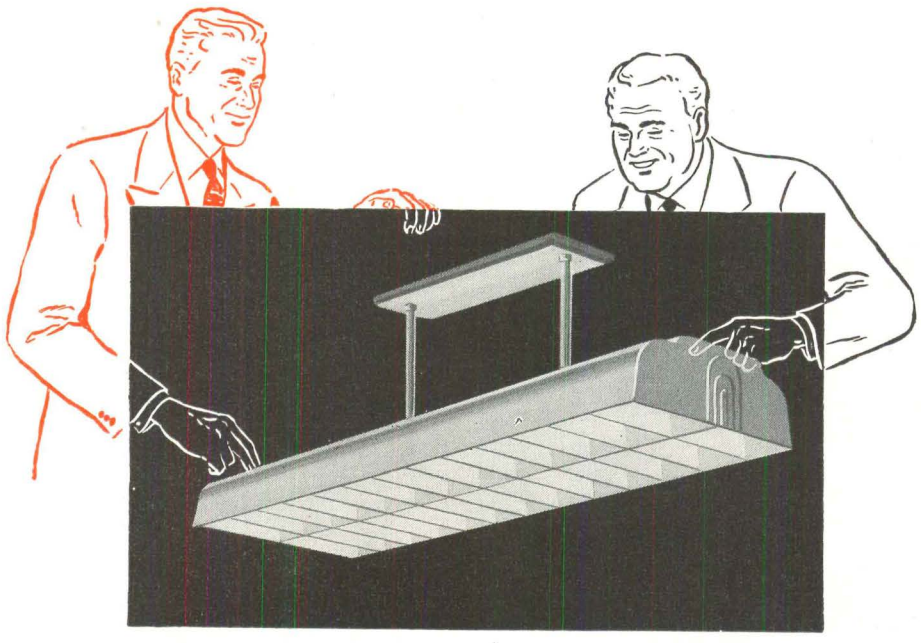


SHEETROCK
T. M. REG U S PAT OFF.
THE FIREPROOF GYPSUM WALLBOARD

U.S.G. Reg. U.S. Pat. Off. UNITED STATES GYPSUM

United States Gypsum
For Building • For Industry
Gypsum • Lime • Steel • Insulation • Roofing • Paint

Your **DOUBLE DEFENSE** *against "unlucky lighting"*

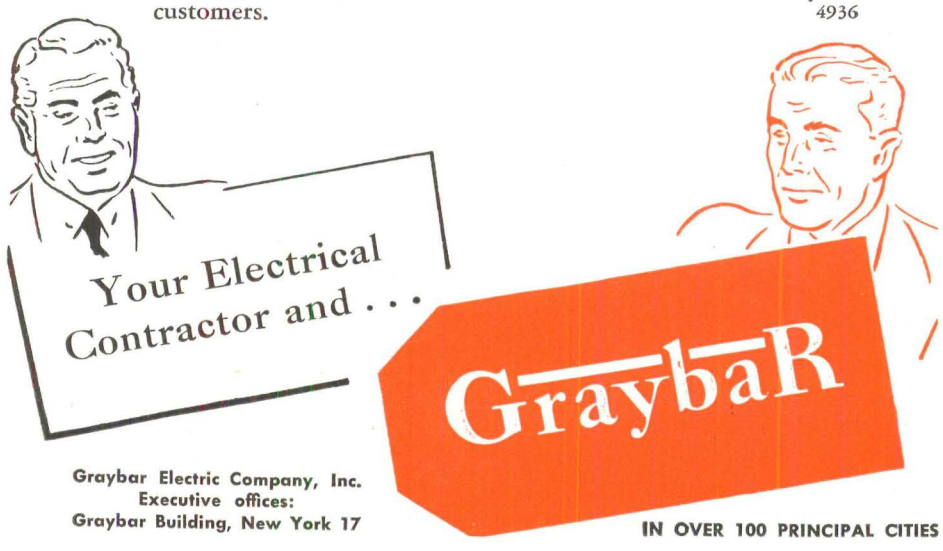


How to make sure the light will be right

Planning the best lighting system — picking the right lighting equipment — isn't easy. As the distributor with the nation's *most complete* selection of lighting and lamps, Graybar can help you in several ways: We will furnish complete information on sizes and specifications of units for any need. We will give you prompt and complete price quotations and delivery data. And we can furnish technical assistance, should difficult jobs require it.

For you and for the contractors you work with, Graybar provides 100,000 electrical items — every one carefully selected from the most dependable product lines in the nation's manufacture.

A Graybar Specialist will gladly help you and your electrical contractor plan wiring, lighting, ventilation, communication — *any* electrical system — for maximum satisfaction of your customers. 4936

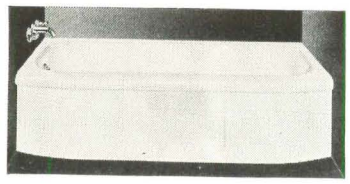


Graybar Electric Company, Inc.
Executive offices:
Graybar Building, New York 17

IN OVER 100 PRINCIPAL CITIES

BUILDING REPORTER

NEW FORMED STEEL BATHTUB harmonizes with other Crane bathroom fixtures.

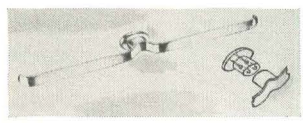


For those preferring a formed steel bathtub, Crane Co. is offering the Ohio, a new 5 ft. model for recessed installation. Furnished complete with a chromium-plated overrim supply and "Dialese" controls, in both right and left hand models, this unit features Crane's characteristic panel design to harmonize with other Crane fixtures. Its 5½ in. wide, flat rim is only 15½ in. from the floor for safe, easy entry and use. A raised tiling ledge at the back and ends prevents seepage of water behind the walls.

Manufacturer: Crane Co., 836 S. Michigan Ave., Chicago, Ill.

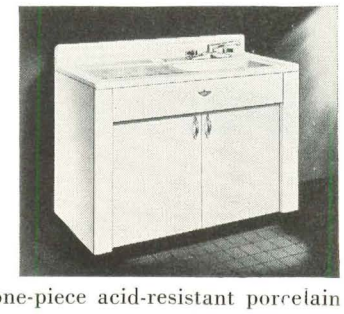
CHROME TOWEL BAR is designed for easy installation.

Consisting of only two parts, the new Bridgman chrome towel bars boast neat appearance and easy installation. A sturdy center mounting holds the bar while towels drape easily over the two open ends. Two concealed screws inserted in the base cannot fall out and, with only one attachment, installation is fast. The Bridgman line, in addition to 14 in., 18 in., 24 in. and 36 in. double-end bars also includes single-end right and left hand bars for guest towels or washcloths.



Manufacturer: General Chrome, Bridgman, Mich.

FOUR KITCHENAIDER CABINET SINKS are available for small and medium size homes.



Latest additions to the Youngstown line of Kitchenaider cabinet sinks include three 42 in. models for small homes and a 54 in. unit for medium size kitchens. The 42 in. units, designated as Standard, Deluxe and Twin models, feature sturdy steel construction throughout and a one-piece acid-resistant porcelain enamel top. The Standard model (illustrated) has a fluted drainboard on either right or left side of the bowl. It also features a 4 in. backsplasher, swing spout and Duo-strainer plus a large storage compartment under the sink. The Deluxe model differs from the Standard mainly in that it has two drawers and a storage cabinet under the drainboard section and a smaller door-equipped storage compartment under the sink. It also includes a flexible spray arm. The Twin model, designed to double as a laundry unit, has two bowls under a single section sliding-removable drainboard. A large storage cabinet is below. These three units measure 42 in. wide, 24 in. deep and 36 in. from floor to bowl rim. All have a recessed front panel. The 54 in. Kitchenaider incorporates a single bowl flanked by two drainboards. There are three drawers, two small and one large storage compartment below.

Manufacturer: Mullins Mfg. Corp., Warren, Ohio

(Continued on page 194)

J&L LIGHT WEIGHT JUNIOR BEAMS

replace wooden joists in modern floor construction

J&L STEEL



Fire-safe, vermin-proof, shrink-proof floors for residences and apartments.

Three sound reasons why J&L Light Weight Steel Junior Beams save money in *all* types of light occupancy buildings.

First—They cost less in both time and labor. The extreme simplicity of construction with J&L Junior Beams cuts labor costs and saves time on the job.

Second—They cut maintenance costs. Rigid, vibration-free and shrink-proof, J&L Junior Beam floors eliminate "settling," which causes plaster cracks, sagging doors, and sticking windows.

Third—J&L Junior Beam floors are fire-safe which means lowest possible insurance rates.

The nation-wide trend toward J&L Junior Beam floor construction is a "natural" for residences, apartments and all other light-occupancy buildings.

Remember, J&L is America's only producer of steel Junior Beams . . . Rigid and Vibration-free . . . Shrink-proof . . . Vermin-proof . . . Fire-safe . . . Permanent . . . Easy to install . . . Adaptable to any finished floor . . . Economical!

The Homestead *apartments, LaGrange Park, Ill. The builders,* Wm. Joern & Sons, *specified* J&L *Junior Beam floors (reinforced concrete supported by* J&L *Junior Beams) throughout the 19 buildings—366 apartments of this project. Architects:* Edwin H. Mittelbusher, Howard T. Fisher & Associates, Inc. *General Contractor:* Patrick Warren Construction Co.

Jones & Laughlin Steel Corporation
401 Jones & Laughlin Building
Pittsburgh 19, Pennsylvania

Please send me complete information on J&L Junior Beams and Junior-Beam Floors.

NAME_____

COMPANY
ADDRESS_____

_____

JONES & LAUGHLIN STEEL CORPORATION

From its own raw materials, J&L *manufactures a full line of carbon steel products, as well as certain products in* OTISCOLOY *and* JALLOY (*hi-tensile steels*).

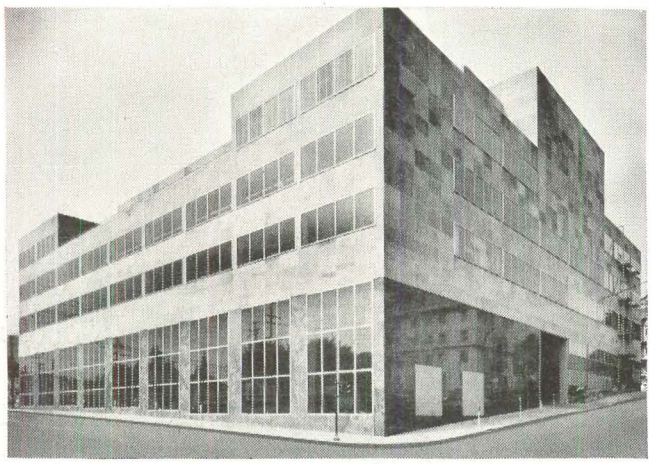
PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS



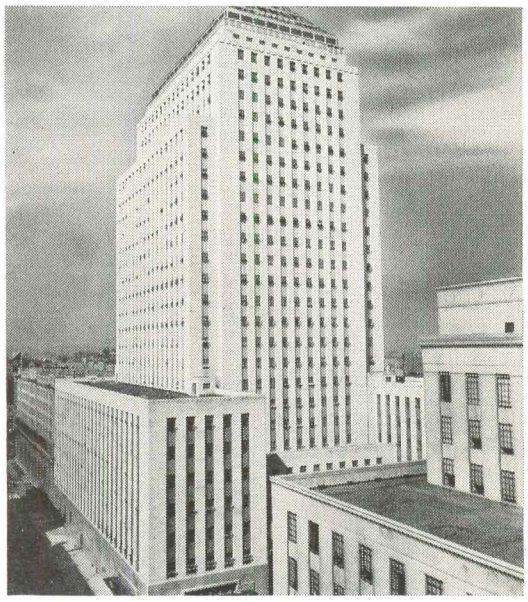
THE MIRROR BUILDING, LOS ANGELES



FOLEY'S, HOUSTON



OREGONIAN BUILDING, PORTLAND



JOHN HANCOCK BUILDING, BOSTON

In America's Finest Postwar Buildings . . .

The ductwork is Aluminum!

In these modern buildings, and in hundreds of other big and little installations — Kaiser Aluminum has been chosen for heating and ventilating ducts.

Here's how you'll gain when *you* choose it, too:

First, you'll find Kaiser Aluminum surprisingly inexpensive.

Then you'll discover its lightness, its workability — *and its toughness.* It takes a Pittsburgh Lock Seam perfectly, and there's no coating to spall.

Next, you'll quickly learn about the additional economies of Kaiser Aluminum. There's less wear on shop equipment, less scrap loss, less worker fatigue. You can skip many steps in handling, storing and trucking assembled sections — because you can set up shop right on the job.

Finally, ducts made of Kaiser Aluminum have lasting beauty — will never rust, never need painting. What's more, they have greater thermal efficiency!

On your very next job, be sure you use Kaiser Aluminum!

Permanente Metals

PRODUCERS OF

Kaiser Aluminum

SOLD BY PERMANENTE PRODUCTS COMPANY, KAISER BUILDING, OAKLAND 12, CALIFORNIA . . . WITH OFFICES IN:

Atlanta • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • Minneapolis
New York • Oakland • Philadelphia • Portland, Ore. • Salt Lake City • Seattle • Spokane • St. Louis • Wichita

WAREHOUSE DISTRIBUTORS IN PRINCIPAL CITIES



BUT how about the cost?

MANY remodeling and construction costs come down to earth — and quality goes up — when you build with time-proved Masonite brand hardboards.

There's one for every purpose. In remodeling this kitchen, for example, smooth, durable Masonite Tempered Presdwood was used for the upper walls, flush doors and work surfaces. Standard Presdwood made the cabinets — for Presdwood is one of the finest woods for cabinets at any price. Masonite Temprtile for wainscoting looks, wears and cleans like tile. And — for the dramatically unusual — rugged Masonite Leatherwood, with the look and feel of fine, Spanish grain leather. was used for the inviting breakfast nook.

Seven different Masonite hardboards are now available. They haven't gone up in price like some alternate materials. Easy to install and with virtually no maintenance cost, they are the practical answer to today's home and commercial building problems. These "wood-made-better" hardboards are available at lumber and building supply dealers. Masonite Corp., Chicago 2, Ill.

MASONITE®
BRAND®
PRODUCTS

STANDARD PRESDWOOD
TEMPERED PRESDWOOD
BLACK TEMPERED PRESDWOOD
LEATHERWOOD • TEMPRTILE
PANELWOOD • TEMPERED DUOLUX

"Presdwood" and "Temprtile" are registered trade-marks. "Masonite" signifies that Masonite Corporation is the source of the product.

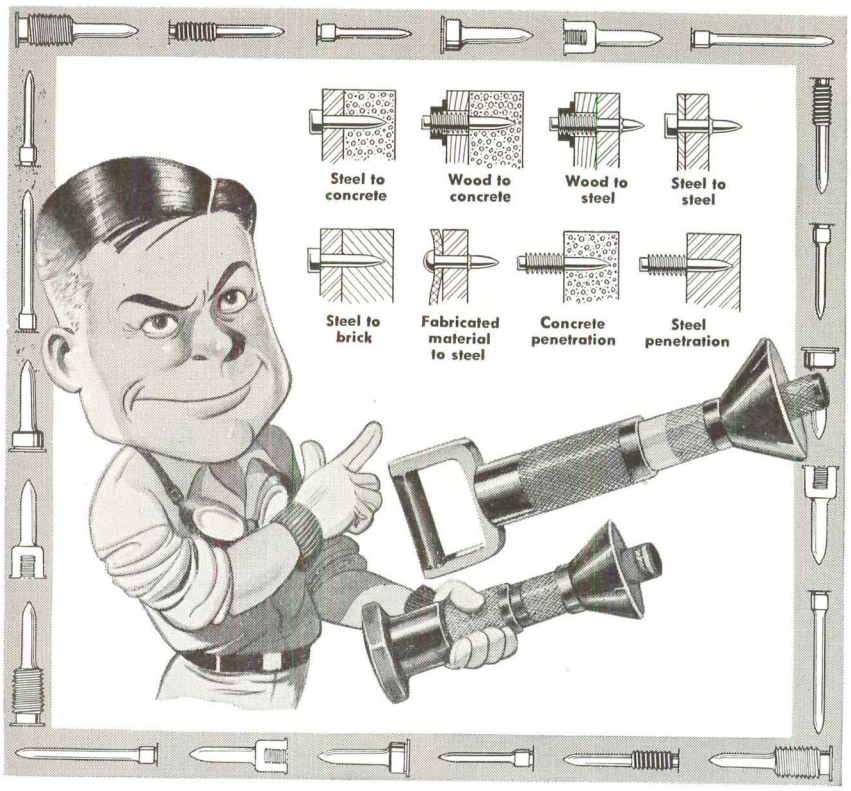
FREE SAMPLES!

MASONITE CORPORATION
Dept. AF-4, 111 W. Washington St., Chicago 2, Ill.

Please send me samples of Masonite hardboards and interesting literature about their application.

*Name*_____

*Address*_____



JOE RAMSETTER . . .

the multi-job man!

Fastening jobs like those illustrated are all in a day's work for JOE RAMSETTER. With his light, self-powered RAMSET TOOL, and 63 sizes of pins and studs, he can set up to 50 fasteners per hour, to cut costs and finish the job faster.

No chipping, no drilling, no plugging. No electric or air lines. Prepare the RAMSET TOOL in 30 seconds. Then, place it against the work and RAM! The fastener is set instantly, tightly, easily. We teach any alert, careful workman to "RAMSET", in 30 minutes.

For fastenings in steel, concrete and other hard-to-work materials, RAMSET pays big dividends in time and money. Use the coupon for RAMSET Fastening Manual and complete information.

Ramset FASTENING SYSTEM

Stemco Corporation Cleveland 16 (Rocky River), Ohio.

In Canada—Globe Machine Tools, Batawa, Ontario.

Stemco Corporation,
Cleveland 16 (Rocky River), Ohio

AF-4

Please send RAMSET MANUAL and arrange for demonstration of RAMSET FASTENING SYSTEM.



Name_____

Company_____

Address_____

BUILDING REPORTER

BUILT-IN ELECTRIC RANGE for small homes permits flexible kitchen arrangements and more storage space.

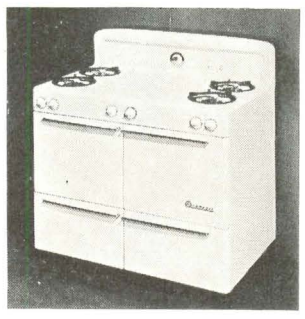
Thermador's new minimum size, 3-burner cooking top makes the space-saving, convenience features of built-in electric ranges available to small home builders and owners. By using this compact burner unit in conjunction with a separate oven that can be built-in anywhere at any height, the Thermador range permits complete flexibility of kitchen arrangement. In addition, space below the cooking counter affords added storage facilities. Model SU-3, the new 35 in. long by 17¾ in. wide, stainless steel cooking top provides three Thermo-Klean heating units: one, 2,100 w., two, 1,250 w. It comes complete ready for installation with a 10¾ in. deep rough-in box and can be installed in a wood or steel, prefabricated or custom-built cabinet. The fully insulated separate oven can be built into the wall or any cabinet 24 in. deep by 20 in. wide by 24 in. high, and at a convenient height to eliminate stooping. As with the cooking top, it is supplied ready for installation and is connected with a single conduit. List price of the cooking top is about $127.50; the oven, $155.



Manufacturer: Thermador Electric Mfg. Co., 5119 District Blvd., Los Angeles 22, Calif.

LOW PRICE GAS RANGE has convenient waste high broiler.

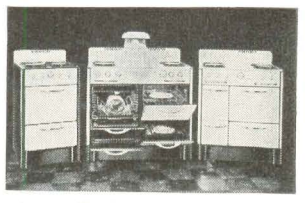
Kalamazoo's low price gas range permits easy broiling without stooping or bending. The waist-high, drawer-type broiler operates smoothly on ball bearings and will broil as big an order as a whole chicken or 12 chops at once. It is equipped with a smokeless chrome tray and porcelain enamel pan. Other features of the new 40 in. model include a large 18 in. wide Thermagic oven and four Hi-Lo multiflame burners. The backsplasher, divided cooking top and control panel are one-piece for easy cleaning. The backsplasher houses a hidden lamp and concealed oven vent. Two large bottom drawers furnish utensil storage.



Manufacturer: Kalamazoo Stove & Furnace Co., Rochester Ave., Kalamazoo, Mich.

LOW PRICE GAS RANGE LINE is designed to meet today's housing needs.

With the addition of the new "Family-Sized 40," Western-Holly's Californian line now offers a choice of three low priced gas ranges tagged from $79.50 to $199.50. These various width models include the apartment size "20," the intermediate "30" and the family-size "40." The new large range is equipped with both a temperature controlled baking oven *(Continued on page 198)*



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AMERICAN CAN
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NASH-KELVINATOR
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Distinctive and esthetically pleasing environments are provided for all types of non-residential structures by Hauserman All-Steel Interiors. These rich, beautiful, rigid walls and ceilings meet every operation and construction requirement from presidents' offices to shipping rooms. They include movable partitions, railings and enclosures of all types that are interchangeable with each other—matching window-wall wainscot—interior doors—built-in accessories—and acoustical ceilings.

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Specialists in Service . . . We assume undivided responsibility for complete interiors . . . shop drawings, building measurements and installation. We supply all products complete with hardware, wiring raceways and all other accessories. Our experienced erection crews are on call for alterations and additions. Our engineers are always at your service.



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MOVABLE PARTITIONS • WAINSCOT • ACOUSTICAL CEILINGS
"For every commercial, industrial and institutional need"

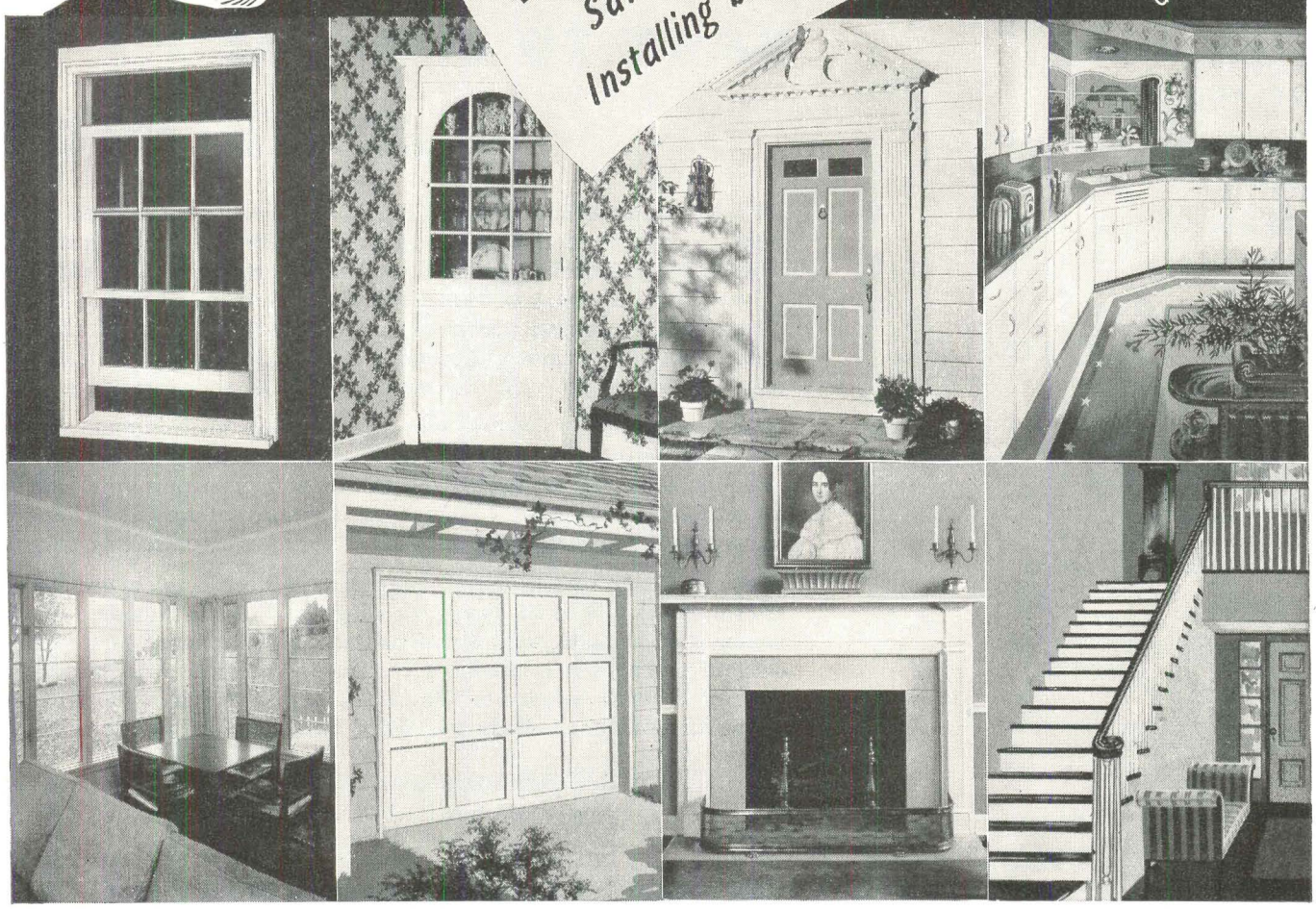
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Carr-dor Garage Doors
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Time saved installing Bilt-Well Standardized, Precision-made Woodwork reduces building costs. Production-line methods speed up the flow of woodwork to Distributors' Warehouse. An adequate stock insures prompt delivery, saving money by eliminating delays which add to building costs. Here is one of the solutions to today's biggest problem . . . "How can building cost be reduced?"

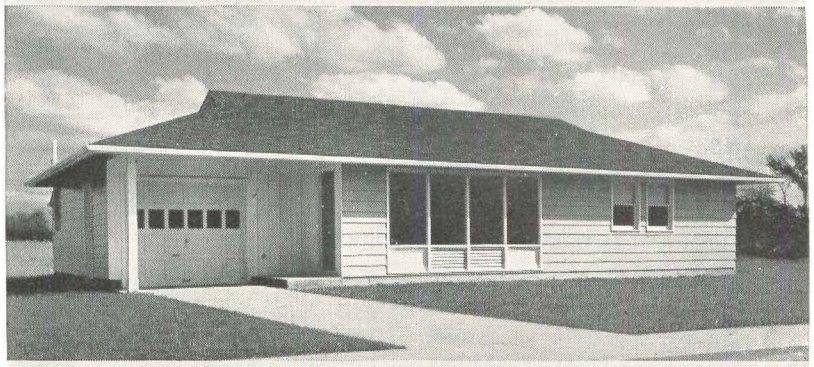
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1866 — 1949

BILT-WELL WOOD WORK
REG. U. S. PAT. OFF.

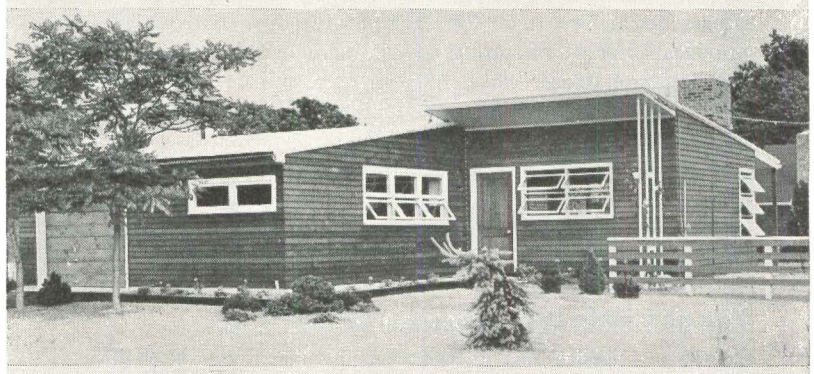
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Dubuque, Iowa

Opportunities for QUALITY HOME BUILDERS

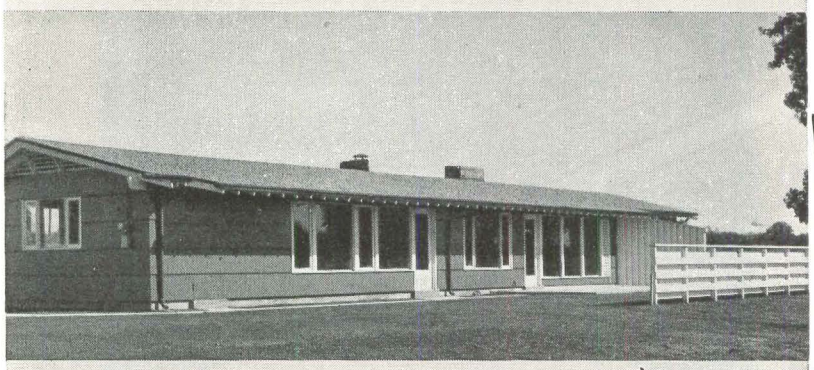
SOME TYPICAL INSTITUTE HOUSES



PARMA HEIGHTS, OHIO (CLEVELAND)
Architect, W. D. Riddle, Willoughby, Ohio
Builder, Maurice J. Fishman, Parma Heights.



SPRINGFIELD, N. J.
Architect, Kenneth Kassler, Princeton, N. J.
Builders, Hawley Jaquith, Wm. T. Smith, Jr., Suburban Properties, Inc., Springfield.



SOUTH BEND, INDIANA
Architect, L. Morgan Yost, Kenilworth, Ill.
Builder, Andrew S. Place, Place & Co., Inc., South Bend.



SARASOTA, FLORIDA
Architects, Ralph S. Twitchell and Paul M. Rudolph, Siesta Key, Florida
Builder, J. E. Lambie, Jr., Sarasota.

During the past year the Revere Quality House Institute worked closely with home builders who completed seven housing projects which received national recognition. Even more important to the builders, these projects were local sensations, because they were so noteworthy for quality design, materials, workmanship and value.

These projects demonstrated the practical advantage of close collaboration among the Institute, architects, and builders. Now new opportunities exist for builders in various cities to join in the 1949 program now getting under way.

These Cities Are Open

(Subject to prior arrangements)

Providence	**Grand Rapids**	**Omaha**
Albany	**Milwaukee**	**Tulsa**
Syracuse	**Indianapolis**	**Oklahoma City**
Rochester	**Atlanta**	**Denver**
Buffalo	**Jacksonville**	**Albuquerque**
New York vicinity	**Miami**	**Salt Lake City**
Philadelphia	**New Orleans**	**Phoenix**
Baltimore	**Memphis**	**Tucson**
Richmond	**Peoria**	**Portland, Ore.**
Pittsburgh	**Davenport**	**Los Angeles**
Dayton	**(Tri-Cities)**	**San Antonio**
Cincinnati	**Des Moines**	**Dallas**
Lansing	**Twin Cities**	

If you are a builder of quality houses in one of these cities, interested in filling the public demand for houses that are different from the ordinary and better than the average, write us.

QUALIFICATIONS:

Projects must consist of ten or more single-family dwellings to sell for about $15,000.

Builder must add to sales values by employing an Institute-approved architect, and work to approved plans and specifications, including group site and plot plans, orientation, varying exteriors, to give individuality and privacy.

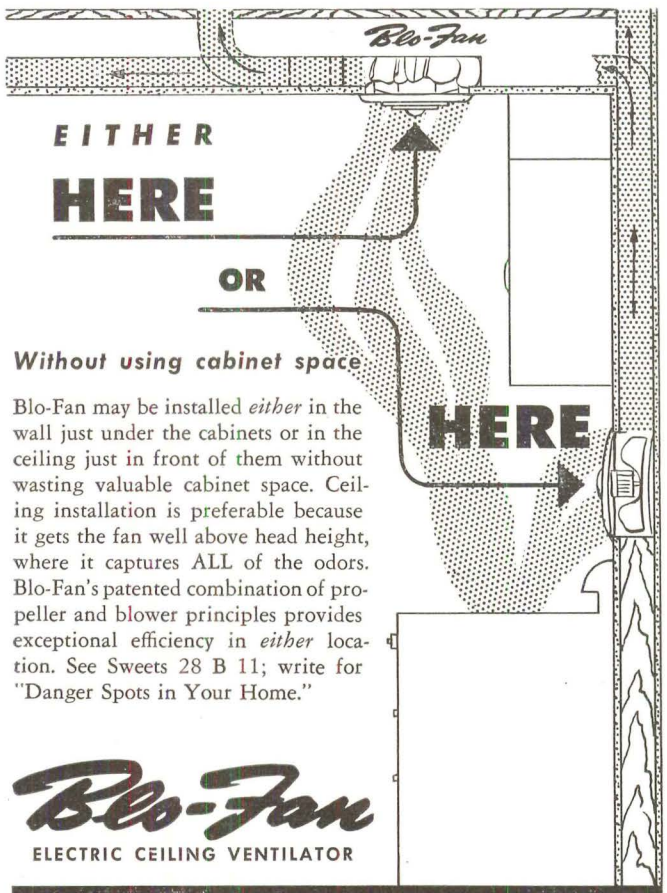
Remember, people always prefer quality; in a competitive market they demand it; and the Institute offers you and them a sound way to identify it.

REVERE QUALITY HOUSE INSTITUTE

C. W. Smith, Administrative Director

John Hancock Callender, AIA, Technical Director

280 Madison Avenue **New York 16, New York**



Without using cabinet space

Blo-Fan may be installed *either* in the wall just under the cabinets or in the ceiling just in front of them without wasting valuable cabinet space. Ceiling installation is preferable because it gets the fan well above head height, where it captures ALL of the odors. Blo-Fan's patented combination of propeller and blower principles provides exceptional efficiency in *either* location. See Sweets 28 B 11; write for "Danger Spots in Your Home."

Blo-Fan
ELECTRIC CEILING VENTILATOR

PRYNE & CO., INC. POMONA, CALIFORNIA • LOS ANGELES
SAN FRANCISCO • CHICAGO • NEW YORK

and a waist-high "Broyl" broiler. In addition, it includes many of the features found on Western-Holly's higher priced Continental ranges. Some of these include: "Tempa-Plates," one-piece oven and broiler construction, porcelain enameling inside and out, "Modern-Way" glide out broiler and glass fiber insulation.

Manufacturer: Western Stove Co., 8536 Hays, Culver City Calif.

ONE WIDTH REFRIGERATOR LINE and Space Saver Kitchen Package are Kelvinator features.

To simplify the architects' floor layout problem and help reduce builders' costs, all models in Kelvinator's 1949 refrigerator line have a uniform width of 31¼ in. Also, three new models have been added to the line: two 8.6 cu. ft. models (RS and RD) and a two door combination refrigerator-freezer. The two 8.6 cu. ft. capacity units provide 22 per cent greater food storage capacity within approximately the same cabinet size as former 7 cu. ft. models. The new two door combination provides 9.5 cu. ft. of storage area in its regular compartment and separate freezer chest, plus an extra 1.5 cu. ft. in the refrigerated fruit freshener zone. This unit retails for $459.95. For small kitchens, the 1949 Kelvinator "Space-Saver" package includes an electric range and a 6 cu. ft. refrigerator which occupies no more floor space than the former 4 cu. ft. model.

Manufacturer: Kelvinator Div., Nash-Kelvinator Corp., 14250 Plymouth Road, Detroit, Mich.

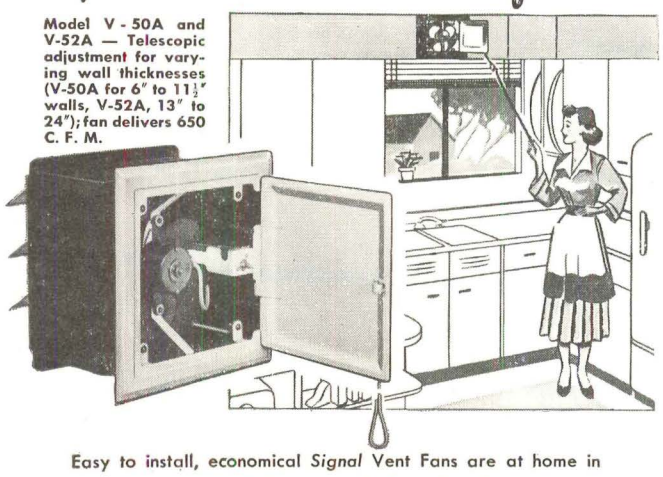
TWO NEW SHOP SAWS announced by DeWalt, Inc.

To their extensive line of woodworking machinery DeWalt has added two new saws, an *(Continued on page 202)*

Signal KITCHEN VENT FANS

Keep Kitchens Clean ... Cool ... Comfortable

Model V-50A and V-52A — Telescopic adjustment for varying wall thicknesses (V-50A for 6" to 11½" walls, V-52A, 13" to 24"); fan delivers 650 C. F. M.



Easy to install, economical *Signal* Vent Fans are at home in any kitchen . . . capturing grease-laden odors, keeping walls and curtains clean, removing unpleasant odors.

Yes, for laundries, bedrooms, recreation and other rooms, architects and builders specify *Signal*, backed by 57 years of fan-building experience. Your best buy is *Signal* . . . phone your nearby Supplier or write for FREE literature today!

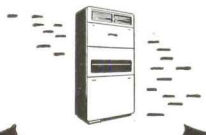
SIGNAL ELECTRIC MANUFACTURING CO.
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BAKERAIRE
the new packaged
SELF CONTAINED
AIR CONDITIONERS

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3, 5, 7½ and 10-ton Models



BAKER REFRIGERATION CORPORATION
(Formerly BAKER ICE MACHINE CO., INC.)
General Offices: South Windham, Maine
Factories at Omaha, Neb. and So. Windham, Me.

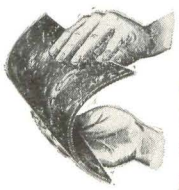
Johns-Manville Announces

REVOLUTIONARY NEW FLOORING!



PLASTIC-ASBESTOS Floor Tile!

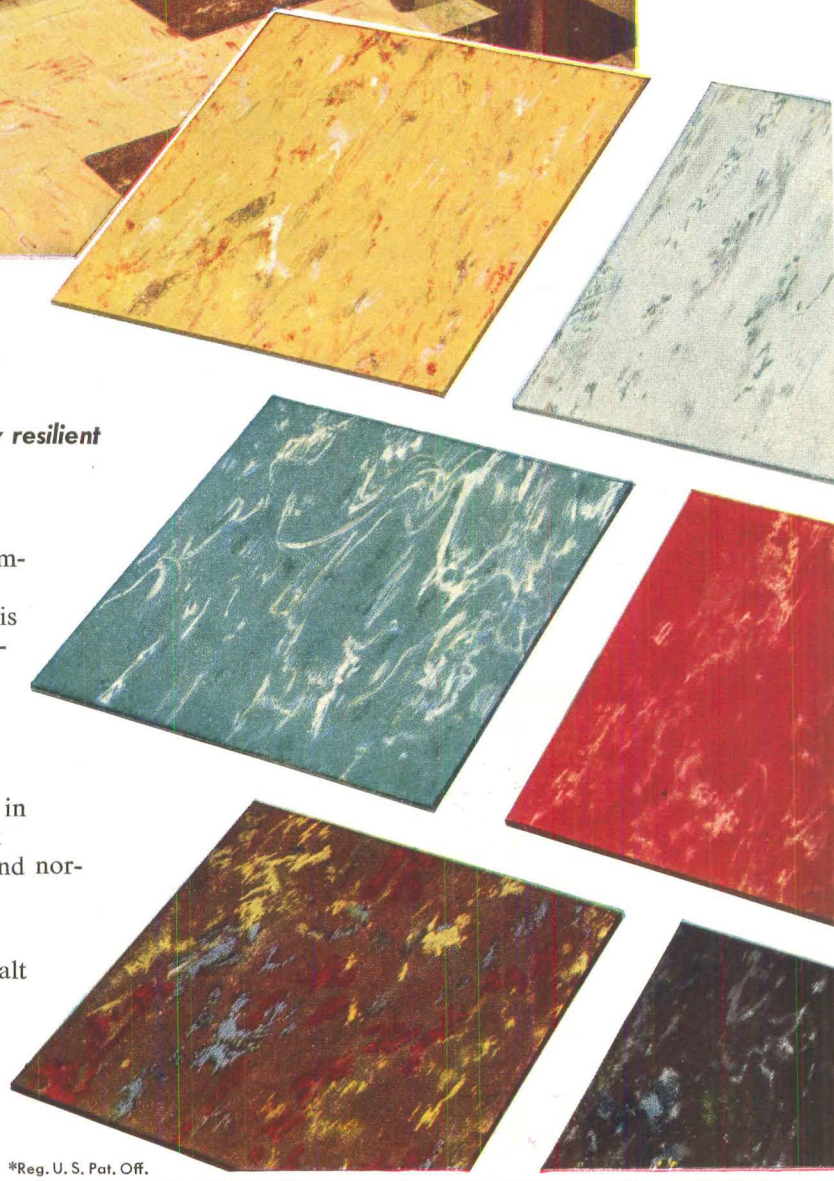
Has clearer, brighter colors . . . lasts twice as long . . . is extremely resilient . . . unaffected by greases, oils, alkaline moisture.



● For the first time, an all-purpose flooring that combines in one material practically all the advantages that could be desired in the ideal floor! TERRAFLEX is *plastic-asbestos* tile—an entirely new type of decorative floor covering, pioneered and developed by Johns-Manville.

Terraflex is unaffected by greases, oils, alkaline moisture, and mild acid solutions . . . Is remarkably resilient under foot, yet will outwear other types of decorative flooring *two to one* . . . Tile-like units come in clearer colors, more stable than ever before obtained in resilient flooring . . . Can be safely used on concrete floors in direct contact with the ground . . . Flexibility permits Terraflex to withstand normal movement of wood floors without breaking.

See your J-M Approved Flooring Contractor, who will gladly tell you more about J-M Decorative Floorings (Terraflex and Asphalt Tile). Write for our new Terraflex brochure. Johns-Manville, Box 290, New York 16, N. Y.



Johns-Manville TERRAFLEX

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OTHER J-M PRODUCTS: *Asphalt Tile—Acoustical Ceilings—Transite* Movable Walls—Corrugated Transite*—Built-Up Roofs—Etc.*

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Janitrol

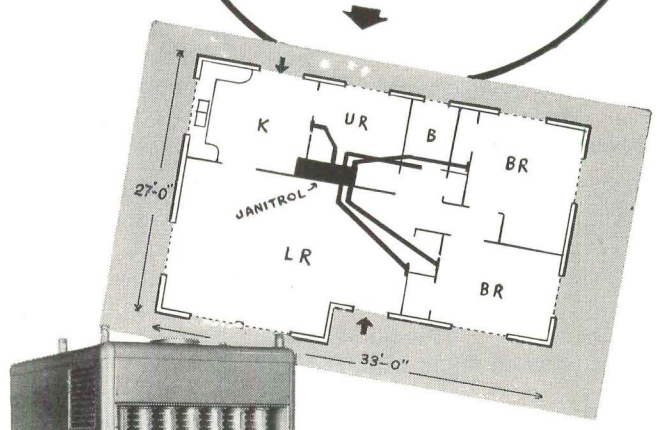
THERM-O-ATTIC FORCED AIR FURNACE

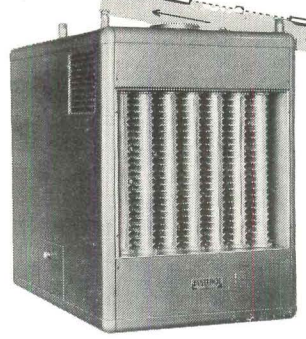
IT'S PRACTICAL! SAVES INSTALLATION COSTS! PROVIDES MORE USABLE LIVING SPACE

Put the heating in the attic? Yes, it's entirely practical with a Janitrol Therm-O-Attic—the installation works like a charm—we have testimonials to prove it. Now, think of the advantages for low-cost homes, where you want to merchandise all that's modern, but you've got to trim costs without seriously sacrificing quality.

1. **No basement** is needed for the heating plant.
2. **You don't use** up scarce closet space.
3. **Short simple** duct systems cut down installation costs.
4. **Grills at** floor levels lead into return air ducts.
5. **Heat is comparable** to a more expensive installation of a winter air conditioner.
6. **A merchandising plus**—the Janitrol Unit can be operated in summer for attic ventilation to exhaust hot air from rooms.
7. **Janitrol Therm-O-Attic** furnaces are complete, factory-assembled and tested packages to further simplify installation.

So, here's the way to put more sales appeal into your smaller homes—provide all the advantages of clean, automatic and economical gas heat with the famous Janitrol name, and at the same time cut your costs. Write today for complete specifications and operating data.





Compact Janitrol Therm-O-Attic Forced Warm Air Furnaces are available in 4 sizes to meet practically every Btu requirement and are equipped for operation with natural, manufactured or LP-Gases.

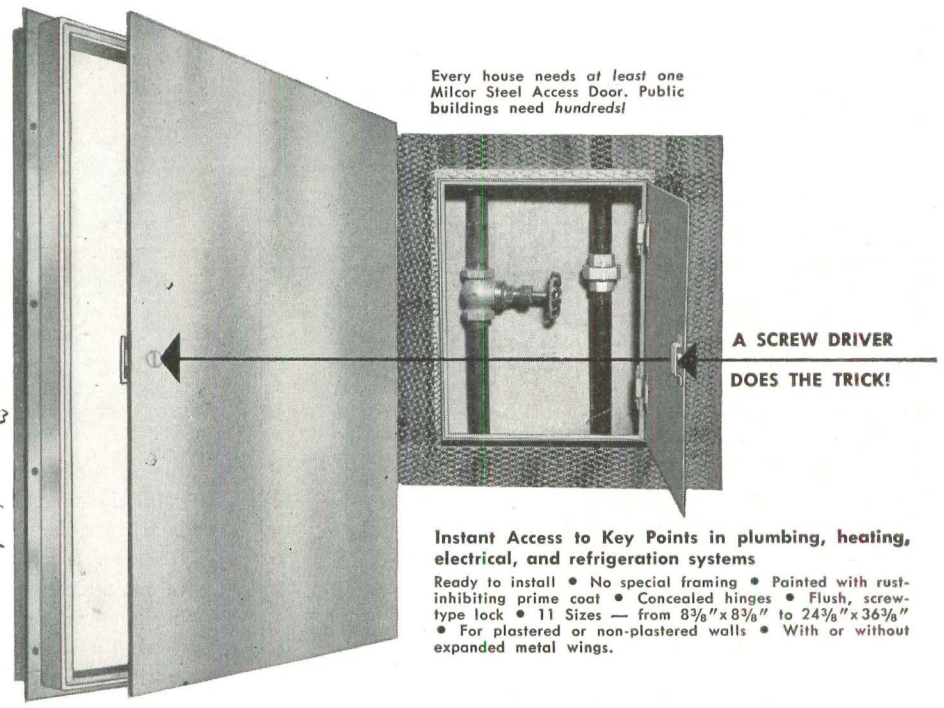
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BUT THERE'S AN EASIER WAY!





Every house needs *at least one* Milcor Steel Access Door. Public buildings need *hundreds!*

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Milcor Steel Access Doors (flush with wall)

look better, last longer, cost less

— and earn you credit for delivering *the best job at the least cost!*

Yes, these handsome flush-type *Milcor Steel Access doors actually cost less than the old type!*

For one thing, they cut labor costs and building time. They are installed quickly and easily—flush with the wall or ceiling. You can paint or paper right over them. And they eliminate costly special construction required by other types of installation.

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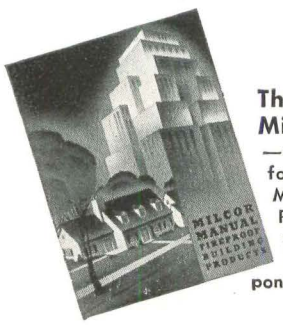
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F-322A



This 20-page Milcor Manual —with complete information on the Milcor Metal Lath Products line — is yours for the asking! Tear out coupon and mail today!

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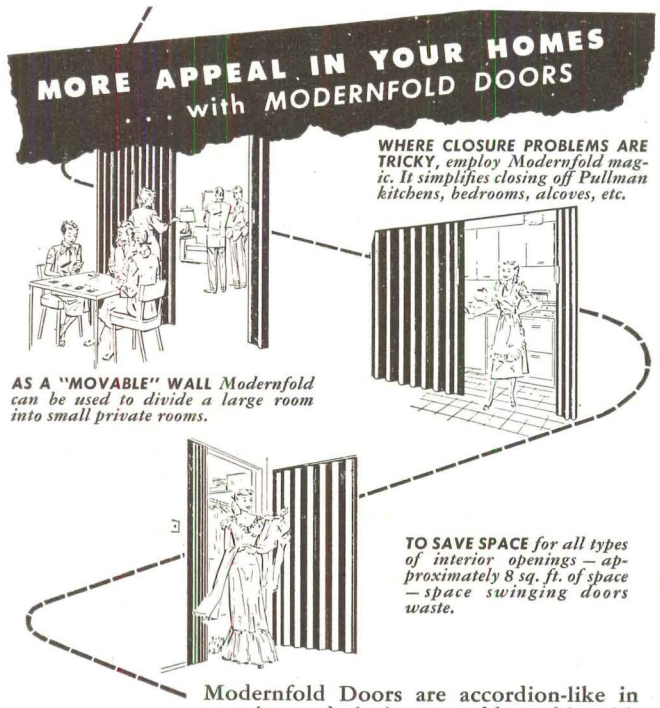
Send me (without obligation) a *Milcor Manual* with full details on Milcor Steel Access Doors and other products in the complete Milcor Metal Lath line.

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Company.....

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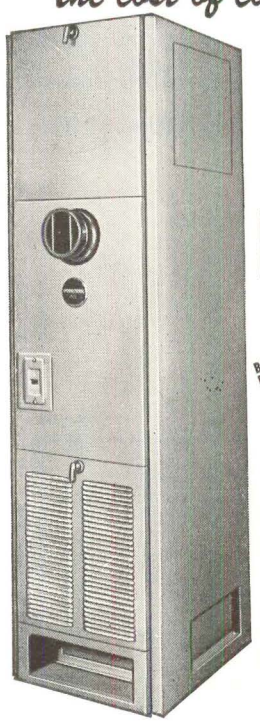
Modernfold Doors are accordion-like in opening and closing . . . add sparkle with their beautiful, washable fabric covering . . . are rigid and strong—thanks to a sturdy metal frame. Write for full details.

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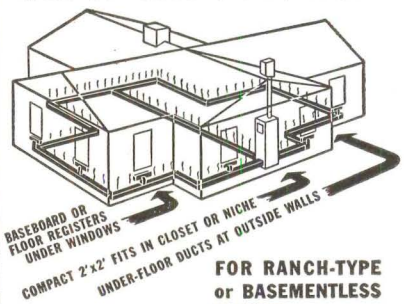
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Both in one unit - At less than the cost of conventional heating!



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WARM-AIR AUTOMATIC
OIL or GAS FURNACE



FOR RANCH-TYPE or BASEMENTLESS HOMES...

A truly great advance in modern heating engineering — that really overcomes the basic problems of home heating. Under-floor ducts eliminate cold floors and chilly walls . . . Base register banishes cold air cascading down windows . . . Elimination of air stratification assures uniform temperatures at all levels. Low cost installation — economical operation.

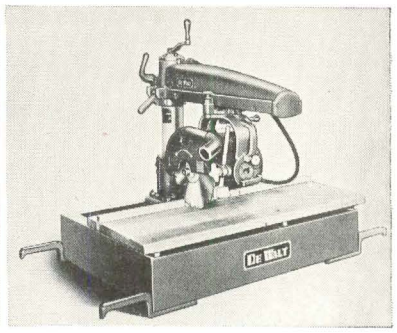
Send for literature giving details and typical layouts.

INTERNATIONAL
OIL BURNER CO.
3804 Park Ave. St. Louis 10, Mo.

BUILDING REPORTER

all-purpose Model GR, and a low-priced Model GW. The larger of the two, Model GR, is designed especially for precision production work. Featuring a 3 h. p. motor driving a 14 in. diameter blade with a 4⅛ in. depth cut, it functions as a cut off, miter, rip, tilting arbor and double miter saw. With





the proper cutting tool, it is also a dado, gaining, grooving and rabbeting machine. Model GR has a heavy-duty, eight ball-bearing roller travel head riding on machined tracks inside the arm. It also incorporates positive alignment adjustments to maintain precision accuracy. Low-priced Model GW is designed primarily for small shops. Featuring a 1 h. p. motor driving a 10 in. diameter saw blade, it will perform the same cutting and shaping jobs as the larger model. It has a heavy-duty, four ball-bearing roller travel head riding on machined tracks inside the arm and the same positive alignment feature. Both of the new units can be used for carpenter maintenance, pattern shop work, outside construction and many other types of wood cutting operations.

Manufacturer: DeWalt Inc., 201 Martha Ave., Lancaster, Pa.

(Technical Literature, page 240)

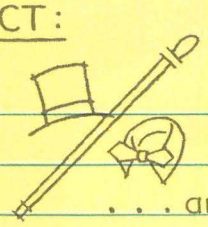
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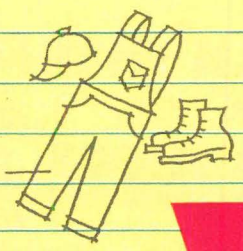


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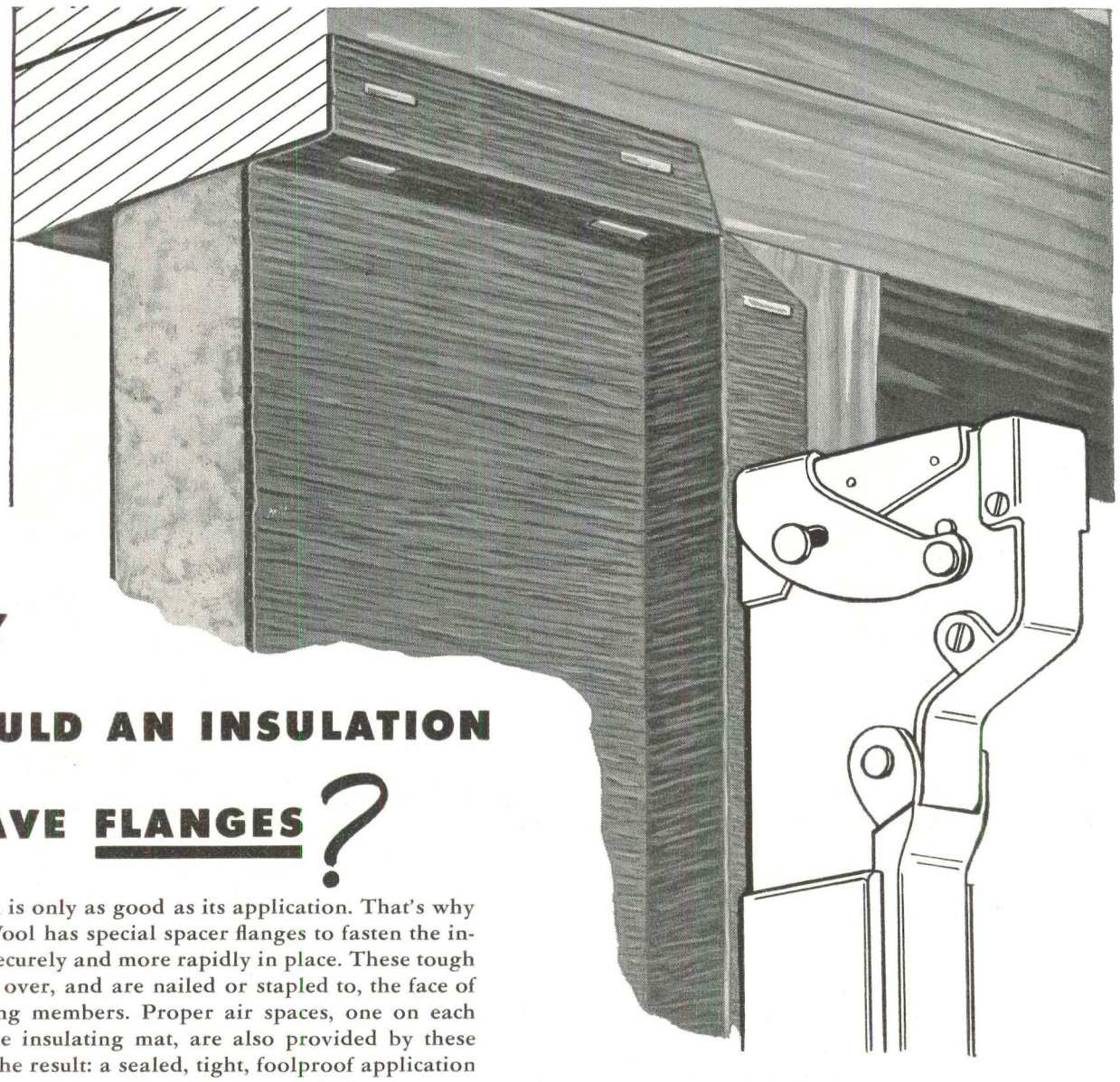
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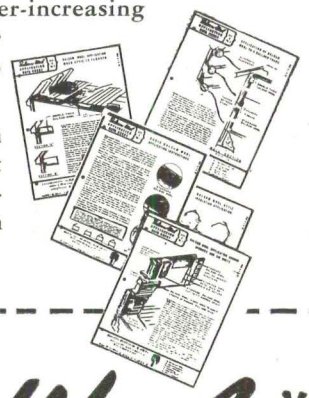


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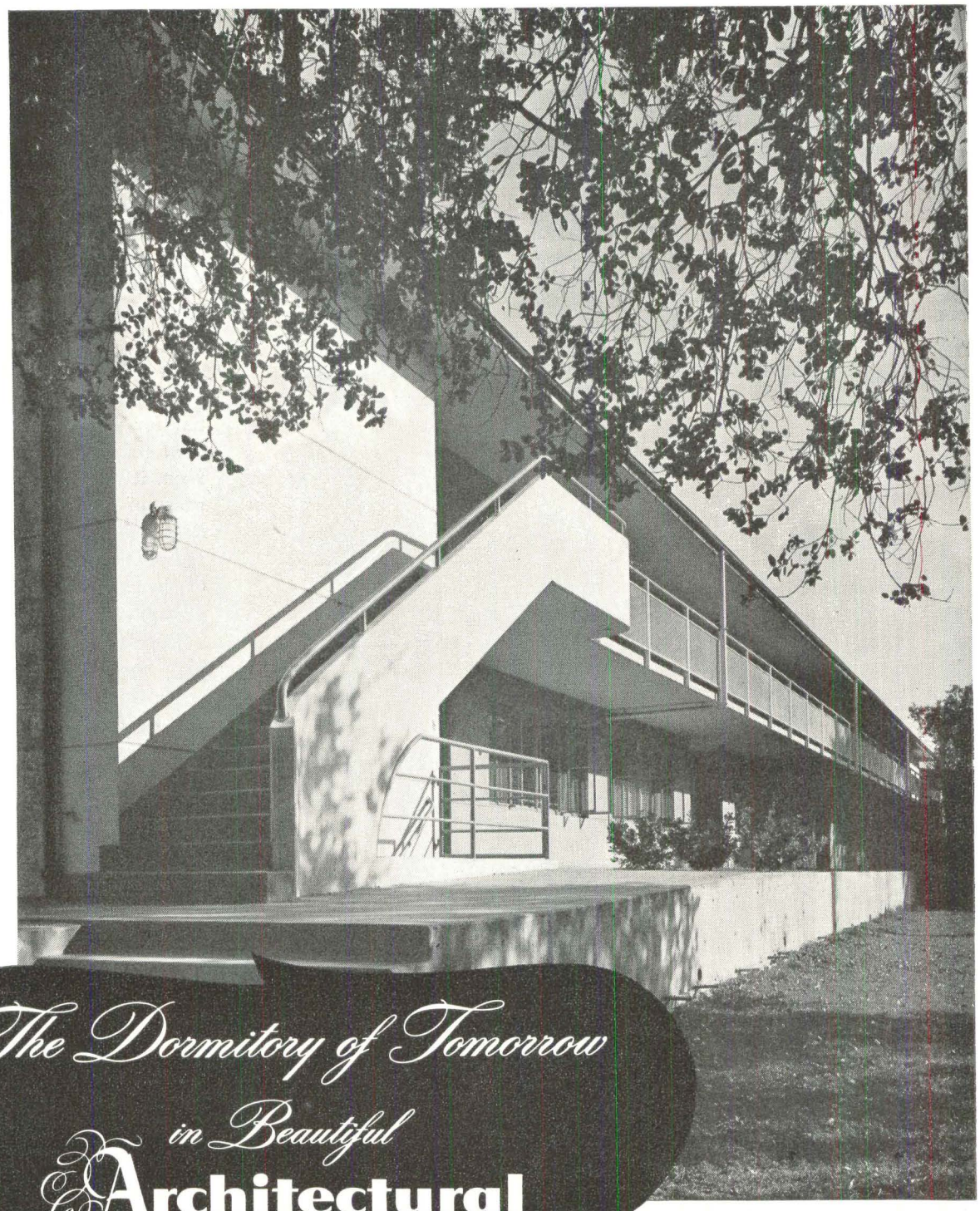
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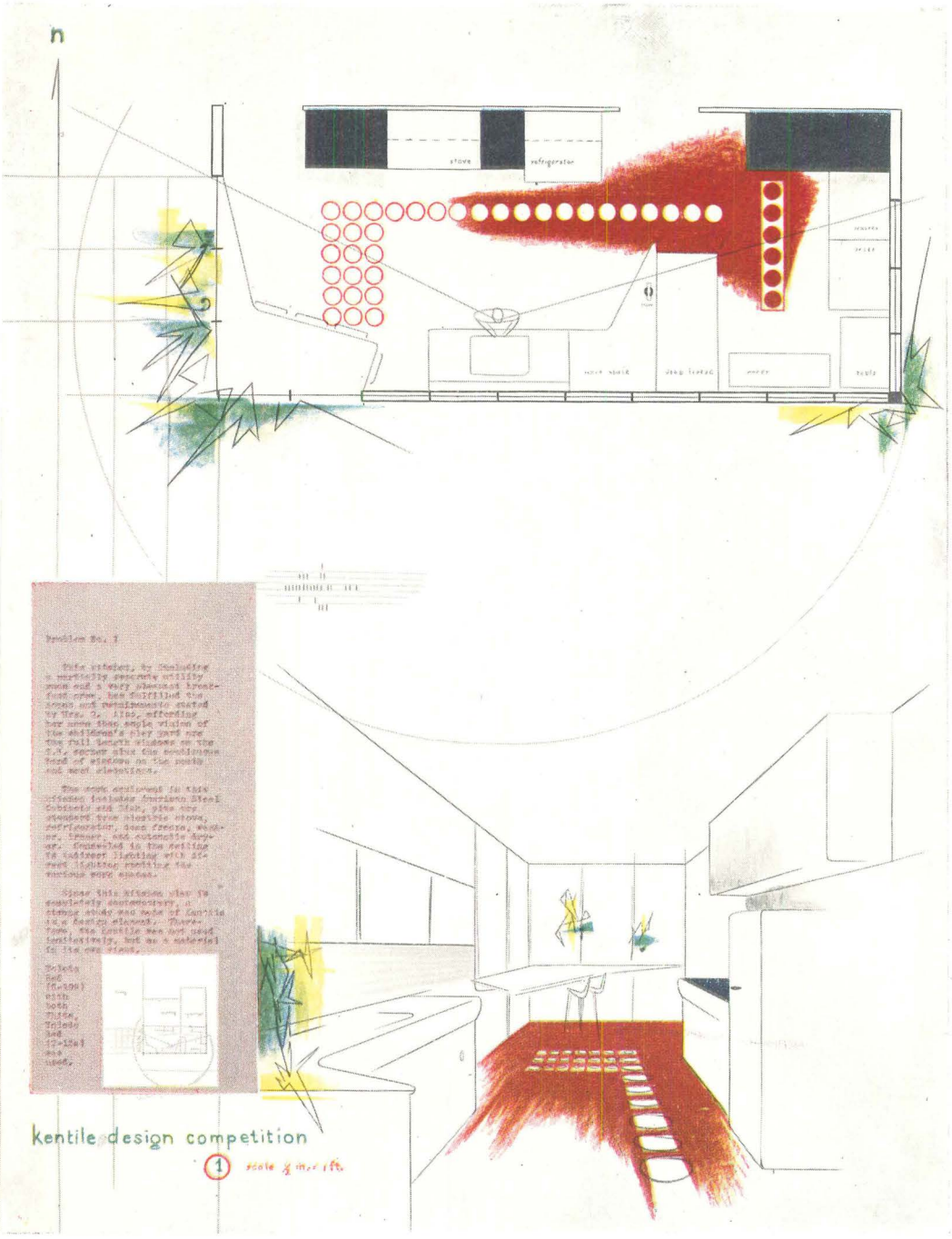
The Dormitory of Tomorrow in Beautiful Architectural Concrete

Appleby Hall, Claremont Men's College, was designed with concrete walls, floors, stairs, balconies and roof slab to withstand seismic forces. Allison & Rible, architects. E. S. McKittrick Co., Inc., contractor.

THE new dormitories at Claremont Men's College, Claremont, Calif., featuring a simple floor plan and functional design, strike a strong masculine note as executed in architectural concrete.

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Kitchen (1st prize) *by Gerry Russello and Ben Johnson, Detroit, Mich.*



Jury report: "This outstanding design uses its pattern with great restraint in areas where its emphasis is meaningful. It would especially enhance the contemporary all-white kitchen. The plan itself is interesting in allowing Mrs. Q to keep close watch on her children's play."

COMPETITION WINNERS apply imaginative design and color to the tile floor

Although the floor is an extremely functional element in any room, it is often a lost dimension as far as design goes. The recent $10,000 contest sponsored by the manufacturers of Kentile flooring (FORUM, Feb. '48, p. 14) set out to remedy this situation—naturally in terms of the company's asphalt tile product. A kitchen, a living area and a candy shop were chosen as interiors that might well receive underfoot attention.

Both winning and runner-up designs served to spotlight the problems inherent in creating suitable floor patterns. Three principles stood out as essential for any successful solution. First, the design must reflect and further the purpose of the room. Next, it must not call attention to itself at the expense of other design factors (this ruled out many handsome compositions which belonged on a wall rather than a floor). Finally, it must suit the nature of the flooring material (tile in this case) which demands a flat pattern—one that stays on the floor.

The winners achieved broad validity by exemplifying the objective set up in the program—"The whole interior space is the designer's objective, not any one part, detail or material." Rated first in the kitchen group was the plan by Gerry Russello and Ben Johnson. Using white circles on a warm, brick-red ground this design emphasized and coordinated the three room functions—breakfast corner with full-length windows, central preparation and cooking area and partially separated utility room. The continuous windows not only provided ample light but allowed a watchful eye to overlook the children's play space outside.

The chocolate-colored walls, peppermint striped floor and delicate glass and metal fixtures specified by George Cooper Rudolph spell "candy" before the first tray of nougats can be set in place. His shop is a good illustration of the formula—simplicity plus color equals sales.

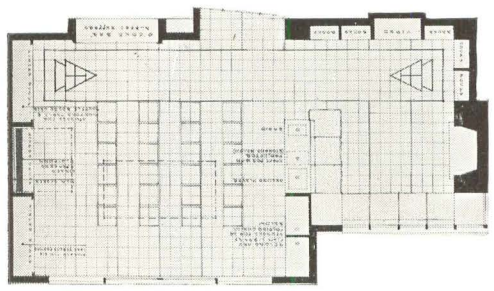
Winner in the third group—a living area by A. Albert Cooling—makes most ambitious use of the floor. Athletic members of the family are provided with shuffleboard and pingpong spacing. Parallel yellow lines in the larger section assist the club-loving housewife to set up in straight lines the folding chairs for her meetings. Film screen, temporary staging, and juke box invite wear and tear for this resilient type of flooring. Designer Cooling, moreover, matches the challenge of these possible activities by providing storage space extraordinary. Twenty-four folding chairs, pingpong table, shuffleboard gear, six card tables, 16 mm. projector, film strips, screen and hinged speaker's platform can all be whisked from built-in storage units at a moment's notice. The floor, as this design makes clear, can be a very vital room element.—S. K.

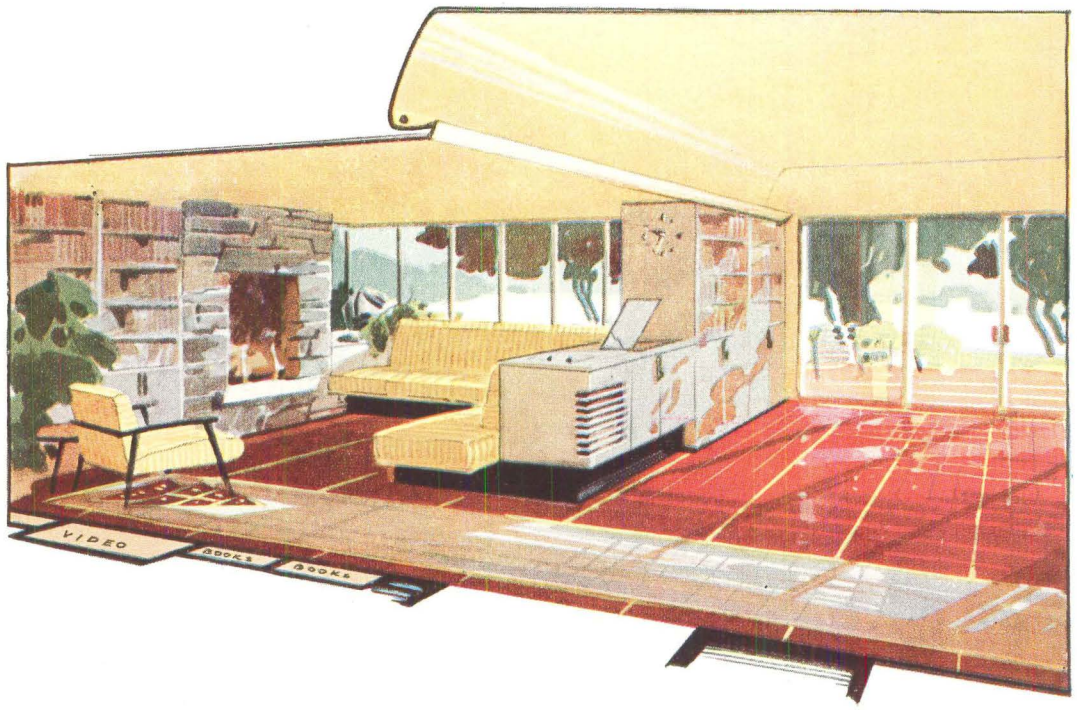


Living Area (1st prize)

by A. Albert Cooling, Los Angeles.

Jury report: "The complex living requirements of this highly individual solution seem to have been brought into harmony by the use of the tile. This was a most effective illustration of the flexibility of modular tile used for a specific room."

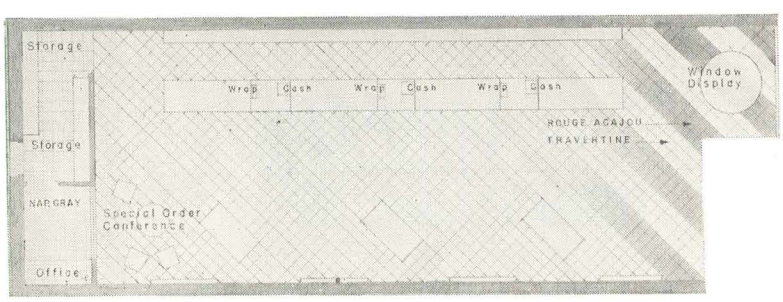


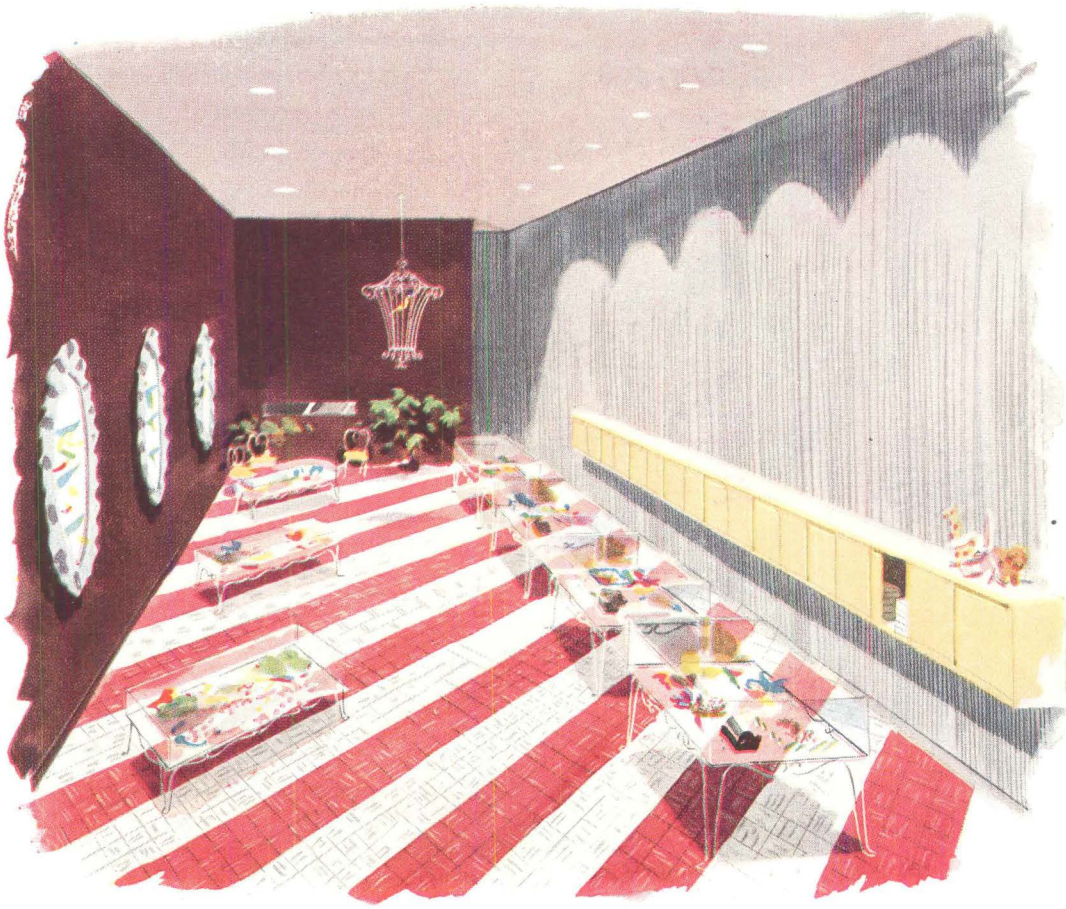


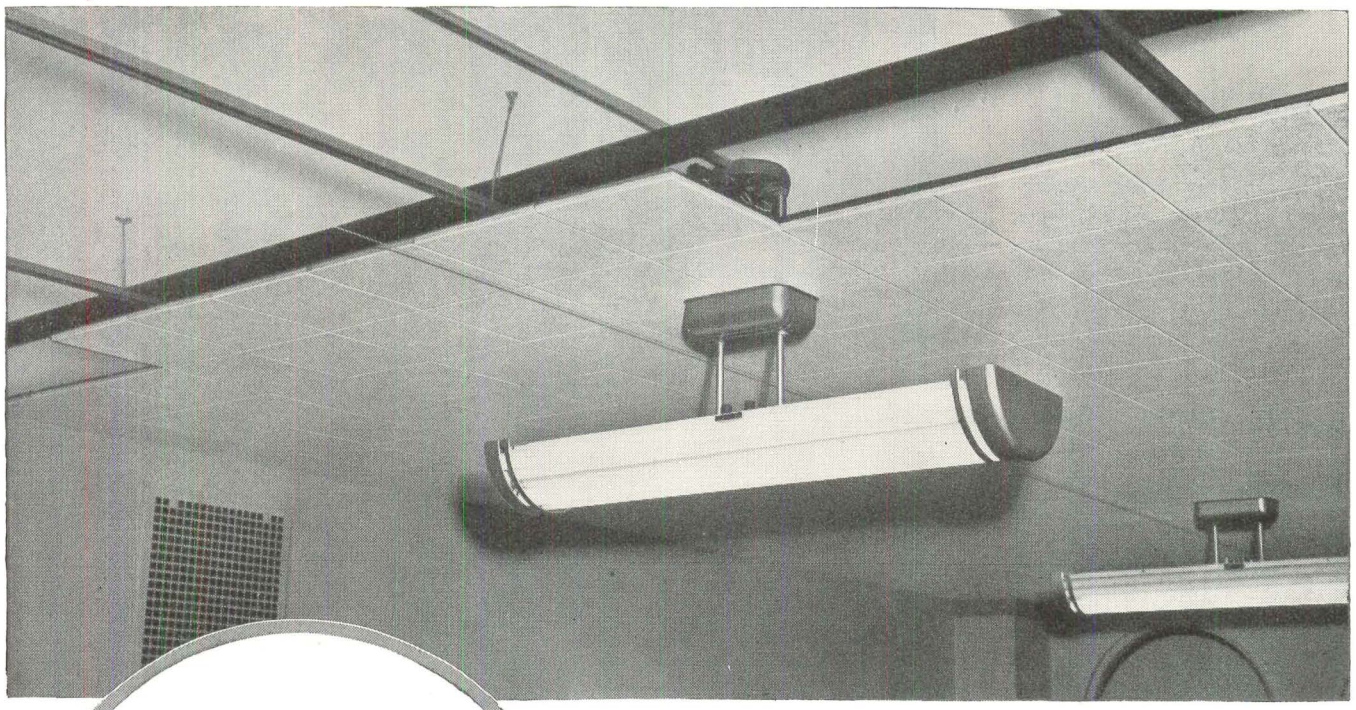
Candy Shop (1st prize)

by George Cooper Rudolph, New York City.

Jury report: "The bold clear stripes are an almost obvious pattern, yet their contrast to the delicate fixtures dramatized the candy. In this successful solution the whole architecture has been translated into something which has the unity and sales appeal of a good package. The candy is still the important thing in this store."







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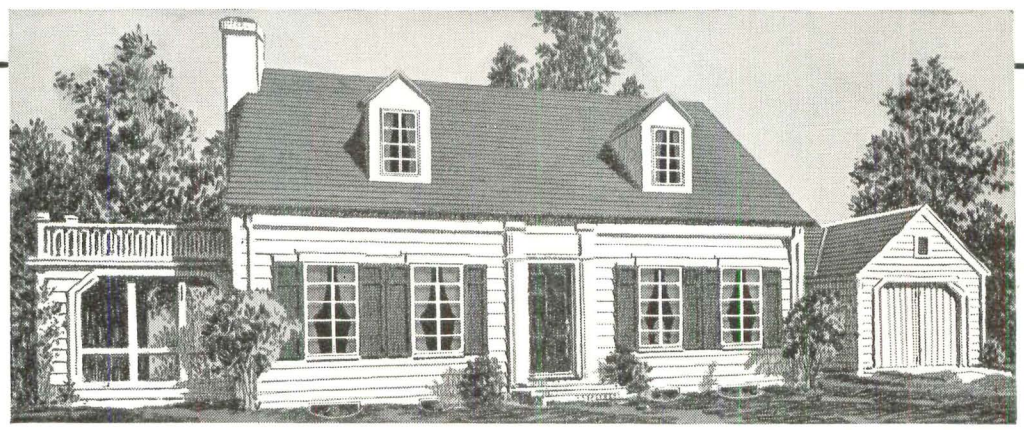
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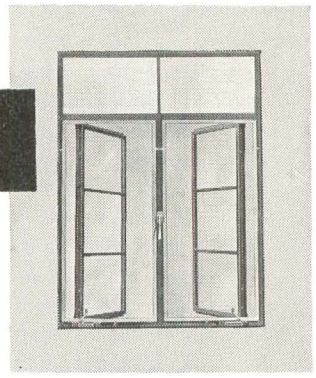
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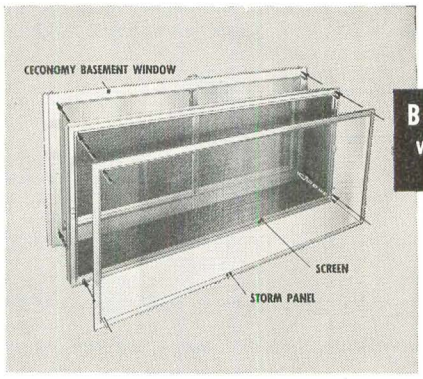
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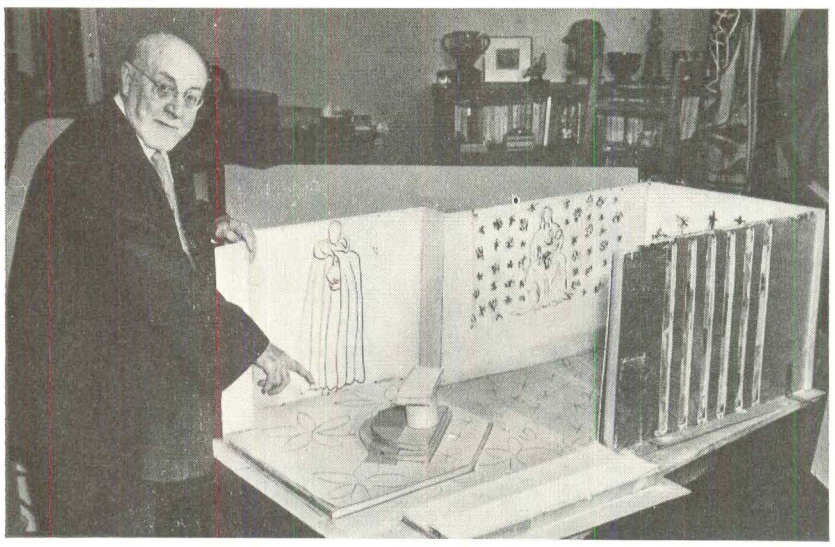
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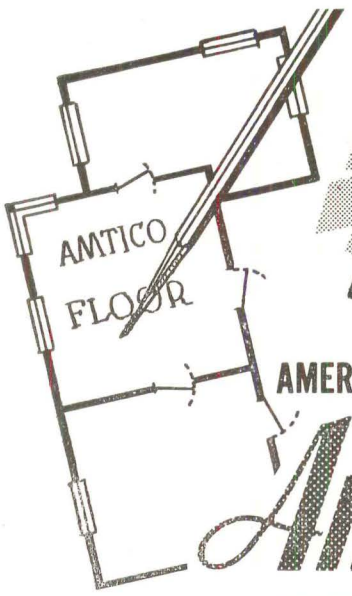
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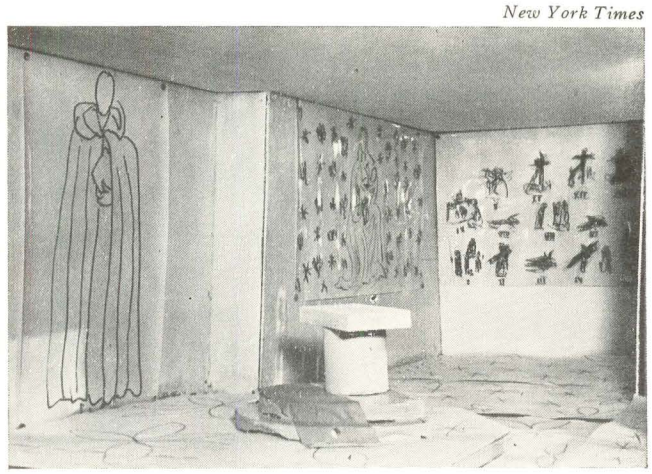
PAINTER TURNS ARCHITECT

Matisse, acknowledged master of color, has set his hand to church designing. The result, as visible in a rather flyaway model, has that freshness of concept sometimes achieved by artists enthusiastically at work outside their own field.

Matisse has introduced no innovations in the shape or structure of his chapel (which will be used by the girls of a small orphanage at Vence in southern France). In shape it is a simple box 30 x 50 ft. and 17 ft. high. The sanctuary broadens slightly to allow room for a choir, and an altar set in the middle allows priest to face congregation and choir.

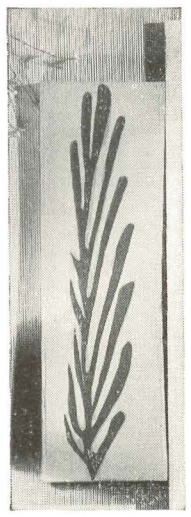
It would seem, from a first glance at the model, that the great colorist had forsaken his most effective tool. All wall areas are of whitewashed brick, and the murals along the north and east walls are line drawings of unrelieved black and white. Fine flower outlines in terra cotta add a little (but very little) color to the white marble floor.

New York Times



It is only when one notices the windows that the reason for such unusual restraint becomes evident. Through 15 tall, narrow stained-glass strips along the south wall, and through two larger ones on the west above the altar, the clear sunlight of that region will fill the chapel with day-long splendor. White walls and floors are designed to catch and reflect the color of stained glass in its greatest clarity and intensity.

Dana B. Merrill



In window and mural techniques, however, Matisse has used some elements unfamiliar to church design. Avoiding the usual storied panels, his windows will be composed of simple leaf shapes in pure color—a motif for which he has shown fondness in a number of recent works (see panel right from screen for Katzenbach & Warren). The twice life-size drawings of St. Dominic, patron of the chapel, and that of the Virgin and Child against a background of stars will be done in his own studio on large tiles —later baked and set in place. (Since an illness seven years ago, Matisse has been forbidden to work long in a standing position.) The same process will be used in completing his design for the 14 Stations of the Cross. These will be incorporated into a mounting S-shaped form set across the whole back wall of the chapel.

Matisse, now nearing 80, is well on the way to completing his most ambitious work, which should form a unique contribution to church design.—S. K.



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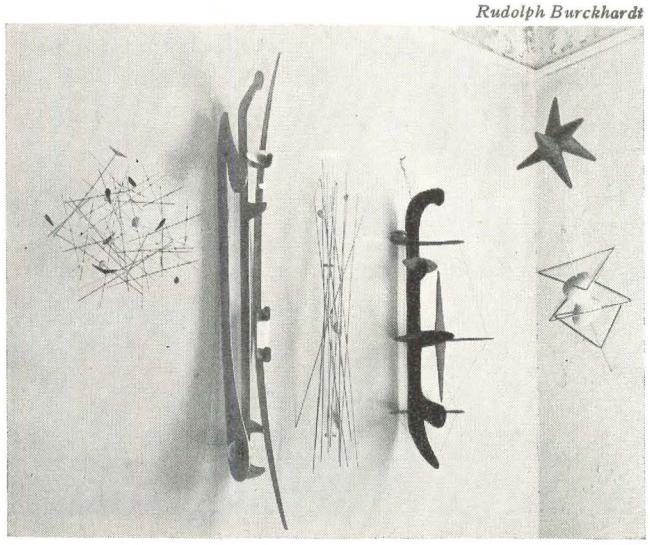
FREE FORM FOR FURNITURE

Free form, like free love, is a highly controversial subject. Even when the phrase is used in its most legitimate sense—a shape determined by inner purpose rather than outside arbitrary rules—it is apt to be eyed with suspicion.

Isamu Noguchi, one of the best-known exponents of the free form in sculpture, has also introduced its use to the allied fields of structure and furniture. Within the last year his near-amorphous reliefs have been incorporated as lighting panels for the American Stove Building and the luxury liner Argentina (FORUM, Apr. '48 and Oct. '48). He has also, at various times, designed coffee tables and lamps. Now, however, his concept of the free form has crystallized sufficiently to allow its use in two furniture groups—for dining and living areas. These embody Noguchi's ideal of furniture. It should be, he says, "a soft rock."

The settee pieces—of upholstered foam rubber on small shaped maple legs—show free form in its purest unangled variety. Such lack of definiteness can be useful in furniture. The Noguchi sofas are equally at ease and equally accessible from any direction. Placed close together they seem to meld into a single very large seating unit. For crowded parties they offer more seating circumference than any conventional design. However, the absence of back support for the dining

Rudolph Burckhardt



stools and its restriction to a partial low rest at one end of the larger sofa gives these pieces an air of austerity. Freedom, it is evident from this showing, does not favor the sloucher.

The off-circular Noguchi tables are as usual delightful. Set-in containers provide the answer to a flower-lover's prayer. (The tables can be had, too, without this feature.) The dining table, solidly braced on a central wooden fin and two metal legs, offers less under-cover obstruction to the sitter than the usual four-leg design. The set (including table and 4 chairs in birch, maple or ebony finish) will retail for about $140; the sofas described above for $425 and $145.

Not a man to rest on a single set of laurels, Noguchi is also having a one-man sculpture show this month at the Egan Gallery, New York. Here, he has included among his more typical standing structures, a number of decorative wall compositions. These make use of a wide variety of materials, from featherweight balsa-and-ricestraw groupings to ones of solid slate, magnesite and mahogany. Especially handsome is a lithe, aluminum design (above second from left) which resembles an oriental word-character — and is forbiddingly entitled "Hanging Man."—S. K. *(Continued on page 216)*



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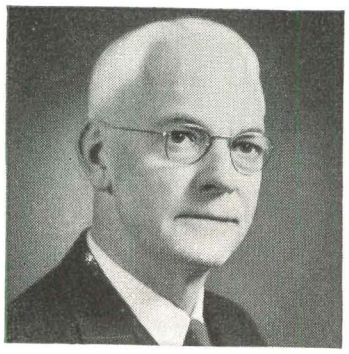
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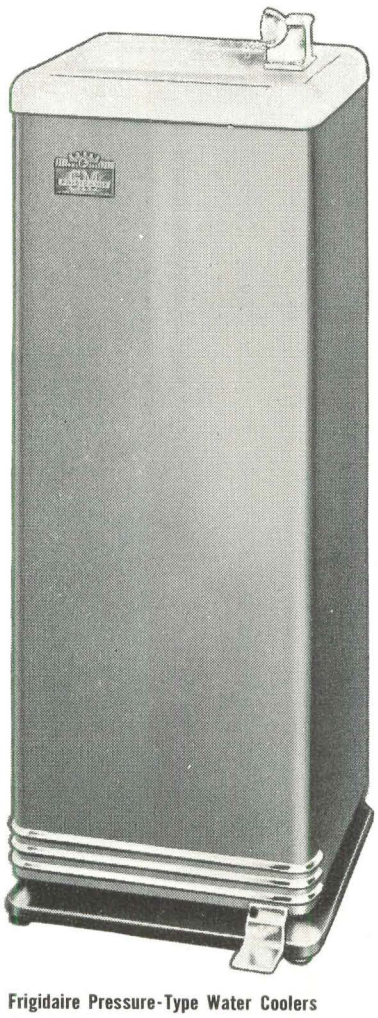
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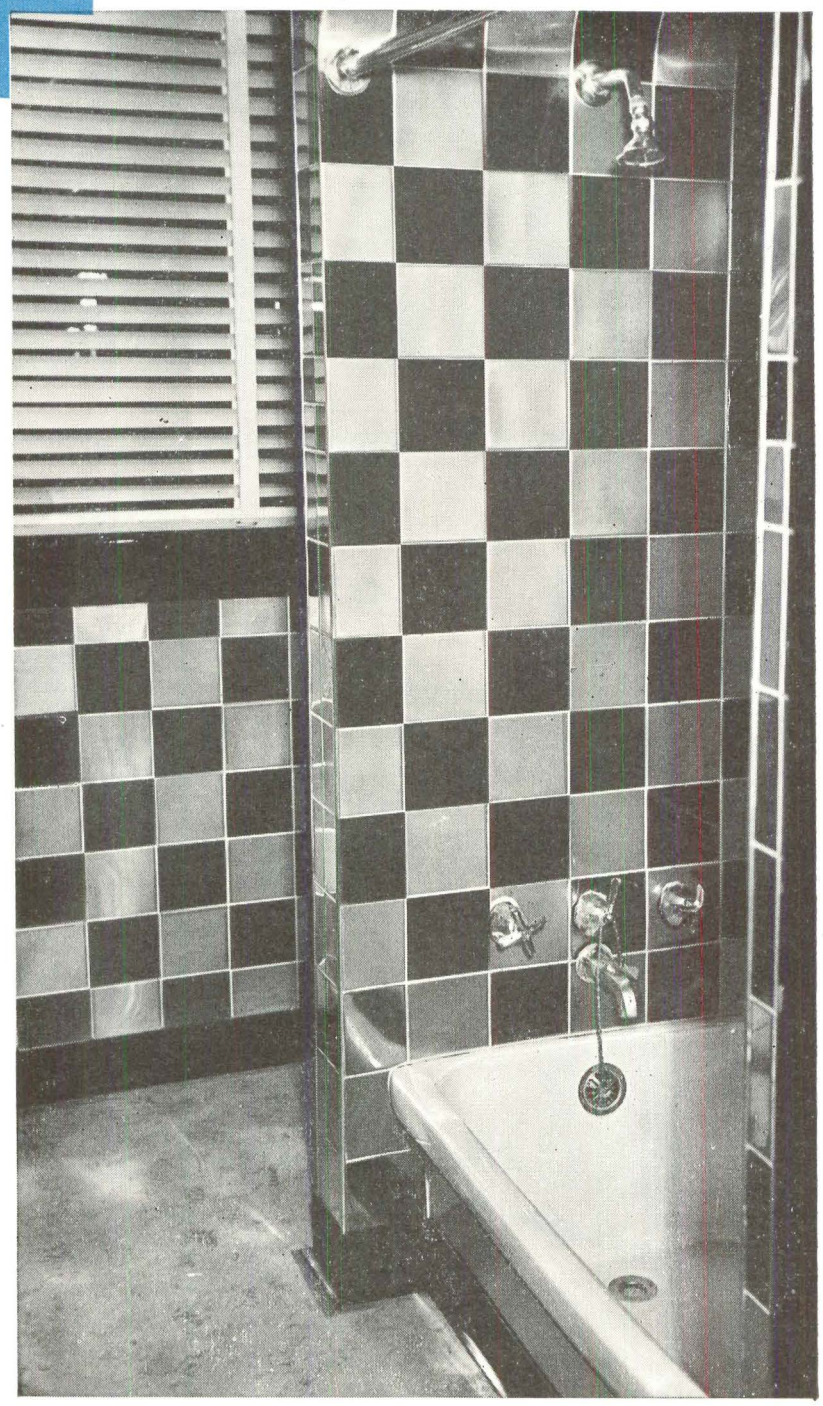
STAINLESS STEEL



Wall TILE

IN BRIGHT OR SATIN FINISH . . . OR BOTH

SHARONSTEEL



STAINLESS — *for Service and Long Life*

Stainless Steel Tile has a natural finish that will withstand the hardest usage. It will never rust, discolor or stain—in fact, will outlive the house itself.

STAINLESS — *for Beauty and Smarter Styling*

Stainless Steel has a clean, fresh inherent beauty obtainable in no other metal. It reflects soft contrasting colors in the room—imparting a vitality which no other type wall covering can duplicate.

STAINLESS — *for Design Flexibility*

Stainless Steel Tile of standard sizes and shapes can be used in either the bright or satin finish or in combination with any color metal tile.

STAINLESS — *for Easier Cleaning*

Stainless Steel Tile is at its best behind ranges or over the sink where frequent cleanings are necessary. A damp cloth will remove the most stubborn grease and grime from the smooth, non-porous surface.

STAINLESS — *for Any Installation*

Kitchens, baths, game rooms, theaters, cocktail lounges, restaurants, tea rooms, yacht or boat galleys or interiors, club rooms, gas stations, creameries, hotel lobbies, bakeries, hospitals, soda or snack bars, beauty shops, etc.

SHARON STEEL CORPORATION

Sharon, Pennsylvania

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SHARON STEEL CORPORATION
DEPT. AF-449, SHARON, PA.

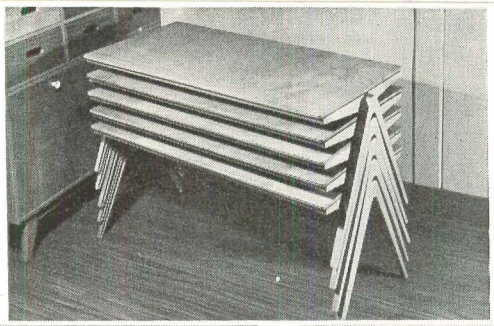
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OVER 100 UP-TO-THE-MINUTE STANDARD AND EASILY-MIXED COLORS
. . . . exact mixing instructions

SAVE TIME, eliminate guesswork, get better results on all types of interior color schemes. Use handy, pocket-size O'Brien Decorators and Architects Color Manual. Over 100 up-to-the-minute colors — 8 deep colors, 15 keyed tints, more than 80 easy-to-make intermixes with exact specifications for mixing. Developed by O'Brien Color Stylists — in tune with latest trends. Easy to visualize — full page 6" x 3" swatches. For your copy see the O'Brien dealer nearest you or send $1.50 to The O'Brien Corporation, Dept. A-4, South Bend 21, Indiana.

GET YOUR COPY OF THE NEW O'BRIEN COLOR MANUAL FROM YOUR NEAREST O'BRIEN DEALER OR SEND $1.50 TODAY TO THE O'BRIEN CORPORATION, DEPT. A-4, SOUTH BEND 21, INDIANA.

MADE BY THE MAKERS OF FAMOUS

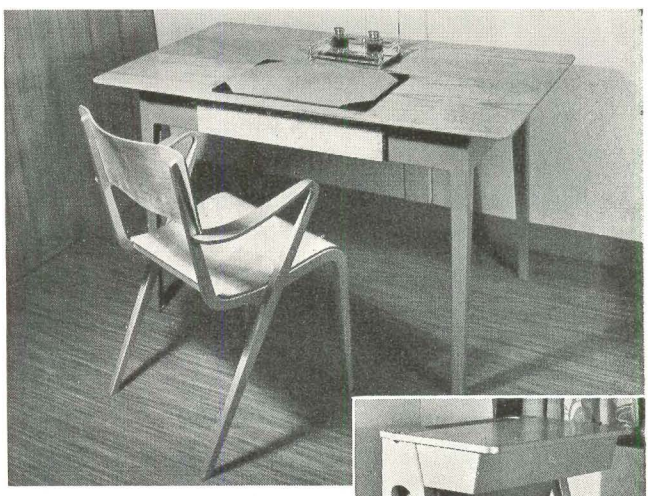
Top Quality O'BRIEN PAINTS Since 1875

REVIEWS

ENGLAND EXPORTS CLASSROOM FURNITURE

An unaccustomed glamor is lent to the three R's by a new line of school furniture introduced from England by Knoll Associates. These chairs, tables and desks of aluminum and plywood have a long-legged distinction which makes them honor candidates for use both in and outside of the classroom.

Credit for their design must be shared between Architect James Leonard and the sweet uses of adversity. Traditional British preference for official furniture of heavy cast-iron and bulky timber proved unpatriotic during the war. Aluminum and plywood won popular approval not only for their virtues of lightness and strength, but for their easy availability. The unbroken lines of the design received encouragement from the fact that they made possible production by die casting—the first time this process has been used for the manufacture of whole furniture parts on so large a scale. A quick and comparatively inexpensive method of fabrication, it can be used with such accuracy that practically no hand treatment





School furniture imported by Knoll is light, strong, easy to stack. Details reveal knowledge of student needs — a deeper section in desk (right) permits setting books on end, library style, still leaves leg-room in front.

is necessary before final assembly of the pieces. A new scratchproof, gloss finish protects the metal and makes the furniture easy to clean.

The Educational Supply Co., English manufacturer of the Leonard furniture, has been solidly established in the school field for 70 years, during the last few decades of which it has developed a number of handsome modern designs. Designer Leonard is an aluminum expert who has to his credit, in addition to 30 years of designing for ESA, a patented aluminum door which folds as well as slides. It is used in the largest installation of that material to date, a 1,065 x 66 ft. hangar door.

The popularity of this line in England can be judged from this quotation in its descriptive booklet, remarkable for scrupulous exactitude—"In England and Wales, to date, over 80 per cent of the County and other educational authorities have had deliveries, some on a large scale and some only for experimental purposes. The London County Council, for instance, has in use over 18,000 units of this equipment." With such a record, more excitable admen might be left gasping—"Love that chair!"—S.K. *(Continued on page 220)*

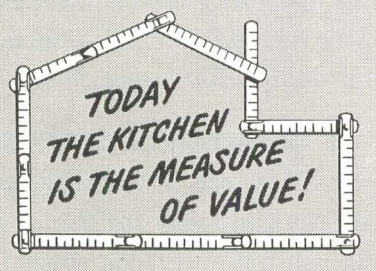


Builder Dave Markham Discovers that New Homes Take on Greater Value When You Add

HOTPOINT All-Electric Kitchens



DAVE MARKHAM
Seattle, Washington



"TODAY'S HIGH HOME prices look lower—when you install Hotpoint Kitchens," says Dave Markham, well-known builder in Seattle, Washington. "The entire new home appears a much greater value when equipped with a Hotpoint Kitchen. Home buyers are kitchen-conscious and Hotpoint's reputation as the pioneer of electric kitchens is a sales clincher!"

ENTHUSIASTIC REPORTS like that from Mr. Markham are coming in from builders and architects straight across America! Everywhere, the building industry is finding that a Hotpoint Kitchen adds that extra measure of value which puts the sale over. Financing can be handled easily in most states by including cost of house and kitchen in a "package mortgage."

INVESTIGATE THIS PLAN for giving your new homes extra sales appeal. Consult your Hotpoint distributor or write to Hotpoint Inc., *(A General Electric Affiliate)* 5600 West Taylor Street, Chicago 44, Illinois.

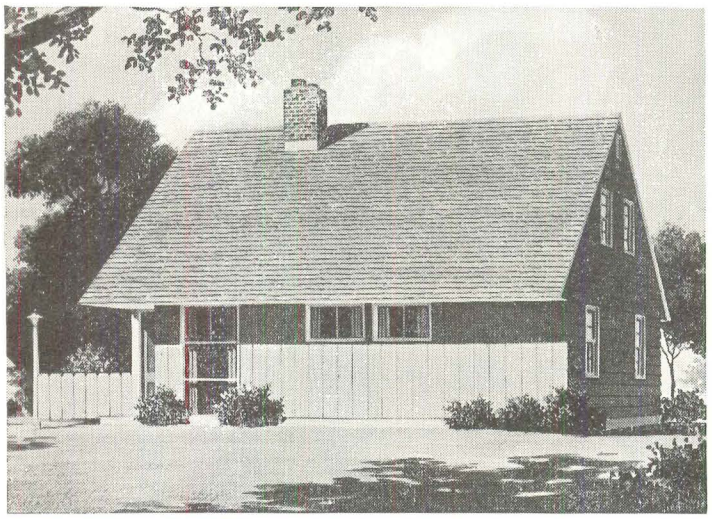
Everybody's Pointing To

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PIONEER OF THE
ALL-ELECTRIC KITCHEN

RANGES • REFRIGERATORS • WATER HEATERS • FREEZERS • DISHWASHERS • DISPOSALS® • CLOTHES WASHERS • DRYERS • IRONERS • CABINETS & SINKS

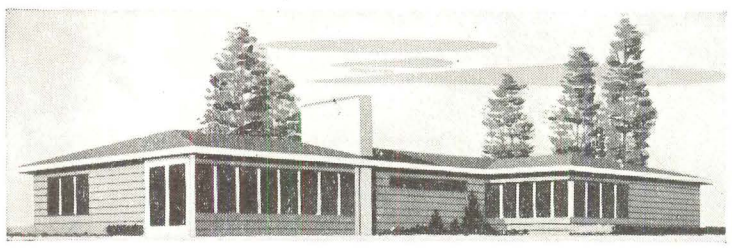
HERE'S HOW KENTILE HELPS



LEVITT HOMES—The 6,000 homes built in Levittown, Long Island, have Kentile in *every* room. Kentile was installed over radiant heated concrete slabs.

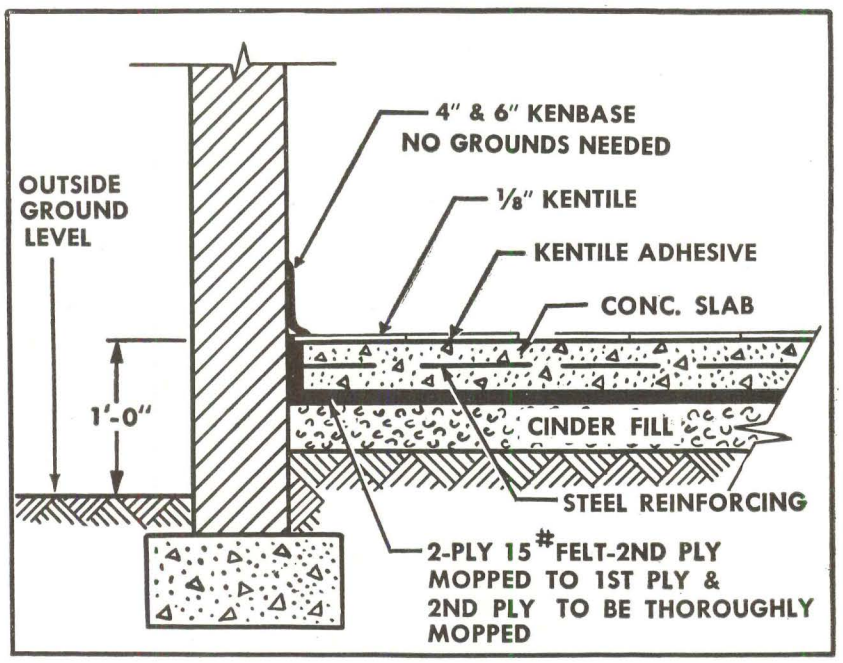


LUSTRON HOMES—These compact, nationally-advertised homes feature beautiful Kentile Floors in *every* room for longer wear, easier cleaning. Kentile helps Lustron cut building costs by permitting direct installation over concrete on grade.



CUSTOM-BUILT HOMES—Private home owners turn naturally to Kentile to give them modern, custom-designed floors with maximum durability at minimum cost. Many of your clients are today learning about Kentile through full-color, full-page ads in leading national "home" magazines.

Kentile can be installed on concrete in direct contact with the earth . . . gives non-basement homes long lasting, attractive, quality floors!



INSTALLS DIRECTLY ON CONCRETE. As shown above, Kentile can be installed on concrete in direct contact with the earth. All fillers, binders and pigments used in Kentile have high resistance to alkali in concrete. And because Kentile's filler is asbestos, Kentile provides highly effective insulation against the cold and dampness of concrete floors. Kentile is ideal for radiant-heated floors, too. Kentile can be installed over double T&G wood floors—or over plywood.

EASE AND SPEED OF INSTALLATION CUTS COST, too. Because Kentile is laid tile by tile, it can be installed faster and with less labor cost. A Kentile floor is ready for use as soon as it is laid. Kentile "seats" well, will not curl when subjected to moisture or dampness.

RESILIENT TILE FLOORING FOR FIFTY YEARS

CUT COST OF SMALL HOMES!



COLOR IN FOYERS AND LIVING ROOMS: Kentile is versatile. Tile-by-tile installation allows complete freedom in designing distinctive effects. Kentile colors and designs blend with modern and traditional settings.



COLOR IN KITCHENS: Kentile is the logical choice for modern kitchens where colorful designs and practical, easy-to-clean surfaces are so important. What is more, Kentile is quiet and resilient under foot. Gives greater comfort, longer wear for kitchen floors.

23 COLORS (B costs more than A; C costs more than B; D costs more than C)

A	Black*	A-102
	Quarry Red*	A-106
B	Grand Antique*	B-204
	Verde Antique	B-209
	Draycot*	B-242
	Breccia	B-245
	Griotte*	B-246
	Sarrancolin	B-254
	Heather Mixture	B-255
C	Toledo Red	C-109
	Veined Carnelian	C-206
	Cippolino	C-214
	Greek Skyros	C-221
	Napoleon Gray	C-222
	Genoa Green	C-244
	Languedoc	C-257
	Comblanchien	C-258
	Grammont	C-260
	Dog Tooth	C-268
D	Fleecy Cerulean	D-225
	Travertine	D-247
	Istrian	D-253
	Rouge Acajou	D-262

*Also in 18" x 24"

STANDARD SIZE — 9" x 9"

FEATURE STRIPS
1" and 1½" widths

5 COLORS

Black	A-102
Aspen Green	C-136
White	D-132
Yellow	D-144
Cardinal Red	D-142

Thickness
1/8" and 3/16"

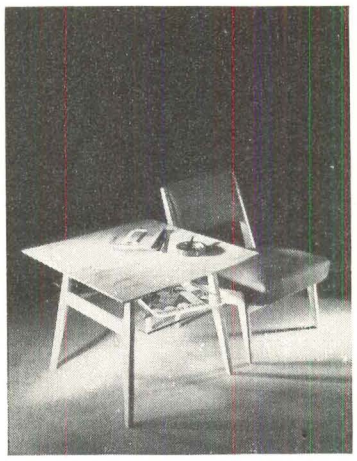


KENTILE®

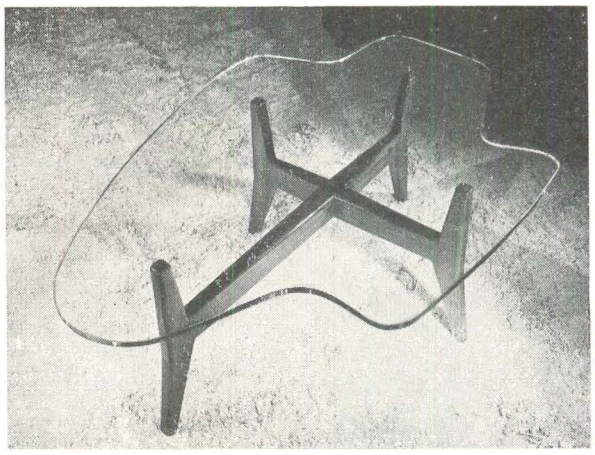
The Permanently Beautiful Asphalt Tile

DAVID E. KENNEDY, INC.

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Ben Schnall



OTHER TABLES, OTHER CHAIRS

Jens Risom Design, Inc., has started off the spring season with another line of seven tables. These range in price from an end unit retailing at $48 to an extension dining model (34 x 72 in. at full spread) for $159. The two shown at the left lie between that gamut—a square corner design with an underneath shelf of plate glass for $87 and a free shape glass coffee table, $144. This last type with wooden top instead of glass is $99. Both use natural birch wood with clear lacquer finish. Like other Risom pieces they rely for their effectiveness on clear-grained wood, articulated jointing and firm straight legs. All pieces except the dining table are available in mahogany and walnut as well as the above-mentioned birch.

Frank Willming



Herald of a new age is the television swivel chair (above) now being marketed by Dunbar Co. This application of Pullman chair principles to home use is warranted to make painless the process of turning around to watch the screen. Of course, as one cynic pointed out, it can equally well be used for the reverse process. In any case, it is cozy enough for a mid-evening snooze. Enthusiasts who are still solvent after investing in a video set will find the chair retailing at $276 (in muslin).

Harold Bartos has designed several chairs (below) for the Lehigh Furniture Co. Light tapering legs and arm rests form a pleasant contrast to the solid curving seat. Foam rubber and automobile springs combine to ensure traditional armchair comfort in the body of these upholstered pieces. The selection of wood parts includes light oak, walnut and birch. Prices start at $168 for the armless model. Upholstered sofas of similar design are already on the Lehigh production schedule. —S. K.

Ben Schnall



(Continued on page 224)

For High Interest Value

...Specify Walls Like These



WHEN architects Ebbets, Frid and Prentice specified Rift Oak Flexwood for this dramatic curved wall in the offices of East Hartford Savings and Loan... they helped their client make a good investment in a bright future.

Luxurious... tastefully modern... and glowing with the warm beauty of real wood, Flexwood complements perfectly the smooth simplicity of the basic design.

Yes, Flexwood is real wood... in its most architecturally versatile form. Fine decorative hardwoods are sliced into thin veneers and mounted on flexible fabric backing. This means you can use Flexwood anywhere... over new walls or old ... on curved surfaces or flat. Fit it to any mood... from sophisticated modern to dignified traditional.

We'll be glad to send you full information on this modern decorative material, including samples, specifications and a list of available veneers. Write today to:



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Flexwood and Flexglass are manufactured and marketed jointly by United States Plywood Corporation and The Mengel Company.

Get THE MOST FROM LIGHT....

WITH PITTSBURGH PERMAFLECTOR LIGHTING EQUIPMENT

Maintain your creative freedom with Pittsburgh Permaflector Lighting Equipment . . . the line made in modules of related units that may be combined to form the design patterns, illuminating effects and foot-candle levels required to do an outstanding job. "Standard" Pittsburgh Permaflector Fluorescent and Incandescent Units give "the light you want where you want it" efficiently and economically.

"A PERMAFLECTOR PORTRAIT"
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"Pittsburgh" Permaflector

FOR MORE KNOW-HOW ON "CUSTOM LIGHTING" WITH STANDARD EQUIPMENT

Write for Catalogs 48 and 46 which give application ideas, descriptions, specifications and other data about flexible Pittsburgh Permaflector Lighting Equipment.

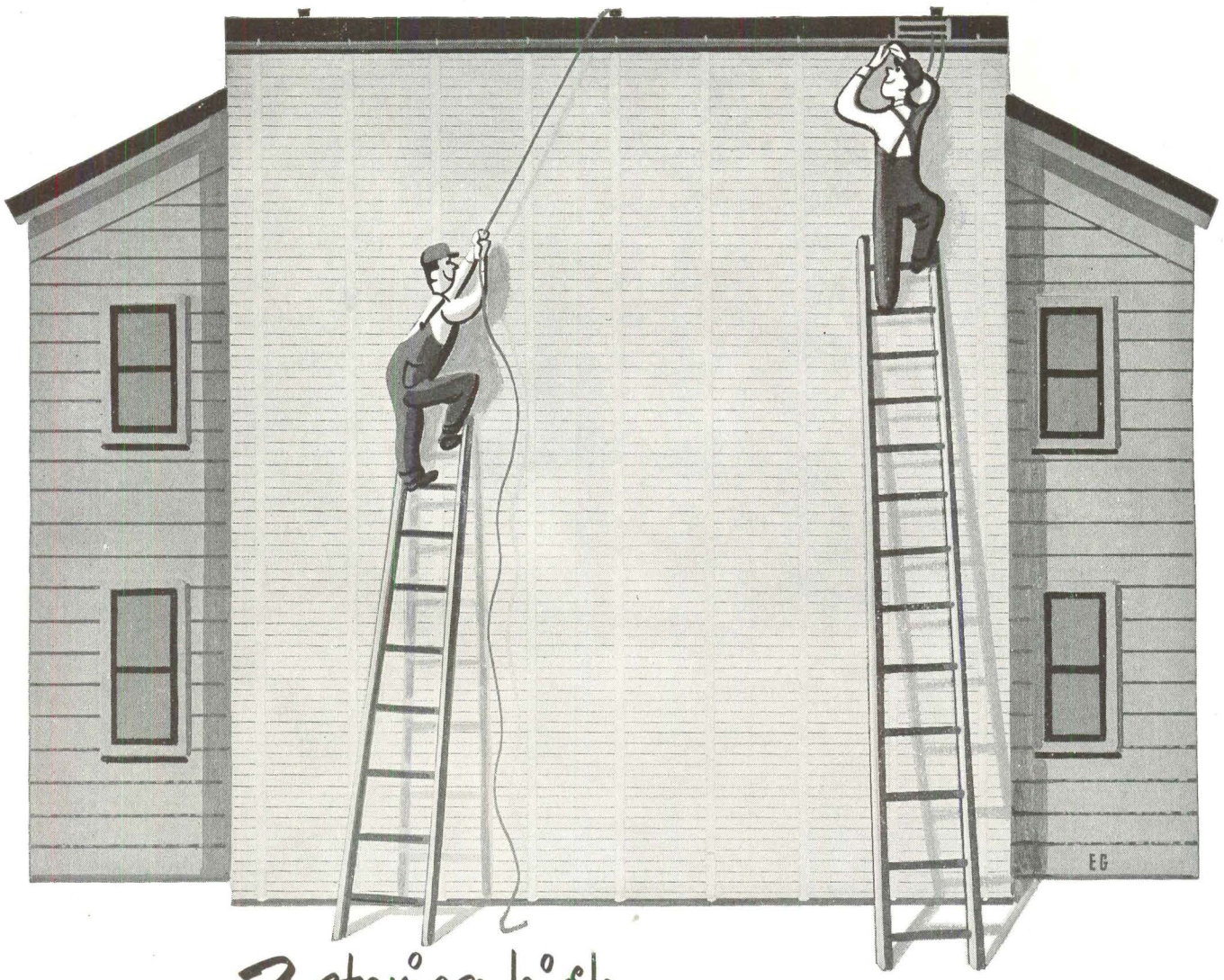
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MANUFACTURERS OF FLUORESCENT & INCANDESCENT LIGHTING EQUIPMENT

Permaflector Lighting Engineers in All Principal Cities

PITTSBURGH PERMAFLECTOR LIGHTING EQUIPMENT IS DISTRIBUTED BY BETTER ELECTRICAL WHOLESALERS EVERYWHERE



2 stories high

Made by Columbia for Kaufman's, Inc. through Simon Ventilighter Co., New York City.
Size: 20 ft., 3 3/4 in. x 24 ft. 10 3/8 in. (507 sq. ft.)

Out in Colorado Springs there's a giant Columbia Venetian Blind two stories high! Before it was installed in the window of the remodeled Kaufman's store, it stopped traffic on display against a 2-story factory. Its special tilt device is operated by remote control!

Here's the point to interest you: the company that can do such a Barnum job has the know-how to handle any kind of Venetian Blind you want! Look to Columbia for quality, for smooth, dependable operation on any scale. "CCC" - Columbia - Controlled - Construction assures long wear and economy. Columbia styling assures smart looks.

★ ★ ★

Columbia Venetian Blinds and Window Shades are sold only through Columbia Authorized Dealers: leading department, furniture stores and shade shops. Your nearest Columbia Authorized Dealer will be glad to consult with you on your special needs.

Ask a Columbia Authorized Dealer

CHECK THESE COLUMBIA QUALITY POINTS

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- choice of enameled-coated steel or aluminum slats. Easy to clean.
- tape removal clip at top and bottom makes tape changing quick, easy.
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- Columbia's special Snap-Stop keeps blind from rattling, banging when window is open.
- "famous fourteen" colors fit harmoniously into any color scheme.

Columbia
VENETIAN BLINDS
AND WINDOW SHADES

FIND full details on Columbia Venetian Blinds in Sweet's Catalog.

THE COLUMBIA MILLS, INC. • 428 SOUTH WARREN STREET, SYRACUSE 2, N. Y.

COLOR DYNAMICS

Pittsburgh's new painting system utilizes the *energy in color* to make offices more attractive and efficient.

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We'll gladly submit a COLOR DYNAMICS Survey to go with your plans . . . Free and without obligation!

THERE is no longer reason for the depressing monotones found so often in commercial structures of all types. Pittsburgh COLOR DYNAMICS enables those responsible for the planning and construction of hotels, hospitals, schools and office buildings to specify with certainty color arrangements that retard fatigue, increase safety and improve efficiency of employees.

This new system of painting takes into consideration many factors upon which an accurate color plan must be based. We'll gladly make a *scientific color engineering study* of buildings on which you are working at your request—free and without obligation on your part.

COLOR DYNAMICS is based upon the influence of the *energy in color* upon people. Laboratory tests have proved that color can be used to help them relax, feel more cheerful, inspire trust and confidence, create better feeling among employees.

With COLOR DYNAMICS you can make offices or living quarters seem more spacious and attractive. Rooms can be made to appear longer or wider, ceiling higher or lower, halls brighter and more cheerful.

For a complete explanation of what COLOR DYNAMICS is and how it works, get our free, profusely illustrated booklet. Send the attached coupon.

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WALLHIDE—**PBX,** extra-durable; **SEMI-GLOSS,** for higher sheen; **FLAT,** for velvet-like finish; **GLOSS,** for severe service and frequent cleaning.

LAVAX PBX ENAMEL—durable finish for interior use. Dries quickly to an eggshell finish that eliminates glare. For wood, metal or other surfaces.

FLORHIDE—for floor surfaces; can be scrubbed repeatedly with soap solutions.

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☐ Please have your representative call for a Color Dynamics Survey without obligation on our part.

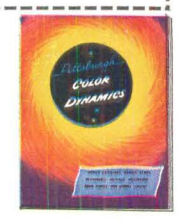
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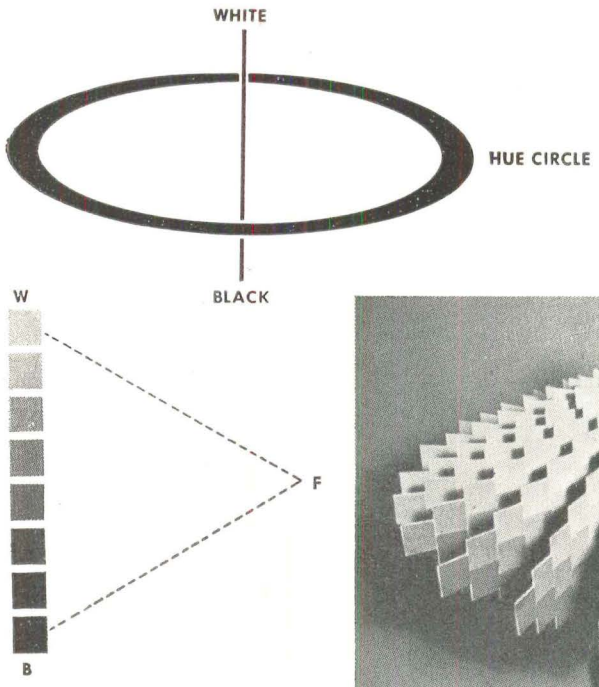


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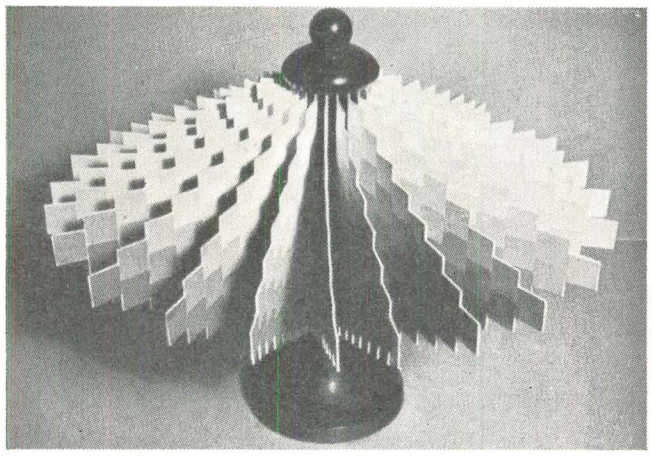
PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY



REVIEWS



BASIC COLOR: an interpretation of the Ostwald theory. By Egbert Jacobson. Paul Theobald, Chicago, Ill. 224 pp. 8½ x 11. Ill. (155 plates in color). $14.75.

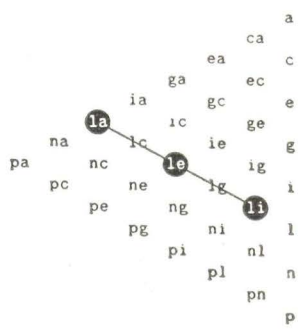
The engineer has his slide rule, the musician his tuning fork, but until recently the designer working with color relationships and harmonies, had no testing instrument but his unaided eye. Within the last few decades this lack has, in the opinion of a wide variety of competent critics, been filled. The new slide rule for everyday color measurement is the Ostwald color wheel.

Egbert Jacobson, author of *Basic Color*, has employed this system with much success in his extensive work for the Container Corp., a firm very aware of the place that art can fill in the everyday sphere. His book, Jacobson states at the outset, is "more for students than for artists." Most of all it is for those "who are confronted daily with decisions about color." For such users the Ostwald system supplies an objective test which "makes it unnecessary to go through the old struggles and experiments each time in obtaining successful color combinations." *Basic Color* explains both theory and application in a simple, masterly way.

How does the Ostwald system work? It arranges the world of surface colors in the form of a double cone (see cut above). This figure, containing 680 shades, is based on Nobel prize winner Ostwald's formula (almost as dynamic in color work as Einstein's famous ratio in physics): F+W+B=Unity, or Full color plus White content plus Black content equals Hue.

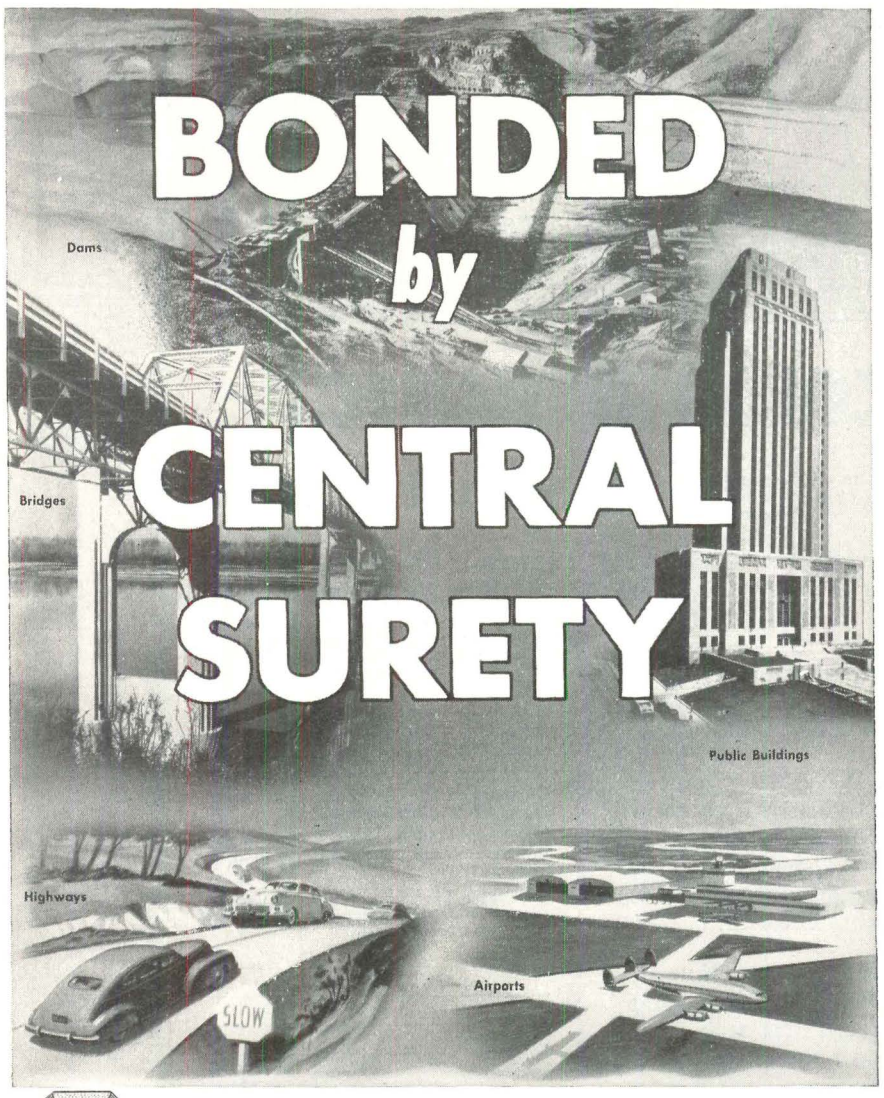
The axis of the wheel is composed of eight gradations from black to white; the equator consists of 24 full colors, developed from four basic complementaries (blue and yellow, red and green). Twenty-four equilateral triangles (one for each full color, round out the wheel and are formed by eight steps up from full color to white (clear-light colors) and eight steps down from full color to black (clear-dark colors). The middle of each triangle is occupied by intermediary 'shadow' steps—admixtures of the full color with both black and white.

One value of such a standard wheel is, of course, that it provides an objective means of specifying color. Ostwald's color break-down, solidly grounded in both sciences of chemistry and optometry, provides the further warrant that even those shades not included in the basic 680-hue wheel can be accurately placed between two that are given. But even more important than this single color standard is the system's provision of a method for testing objectively the value of color harmonies. The basis is Ostwald's simple but revolutionary premise — "those colors seem harmonious or belong together, whose attributes are definitely and simply related to each other." (Dissonance, in art as in music, is valid only if it is deliberate.) On the Ostwald color wheel these relationships can be studied and compared as simply as a tone interval on a piano. *Basic Color* lets the reader try it out for himself by an ingenious system of color charts.



Each color is identified by letters. Regular intervals stand out clearly.

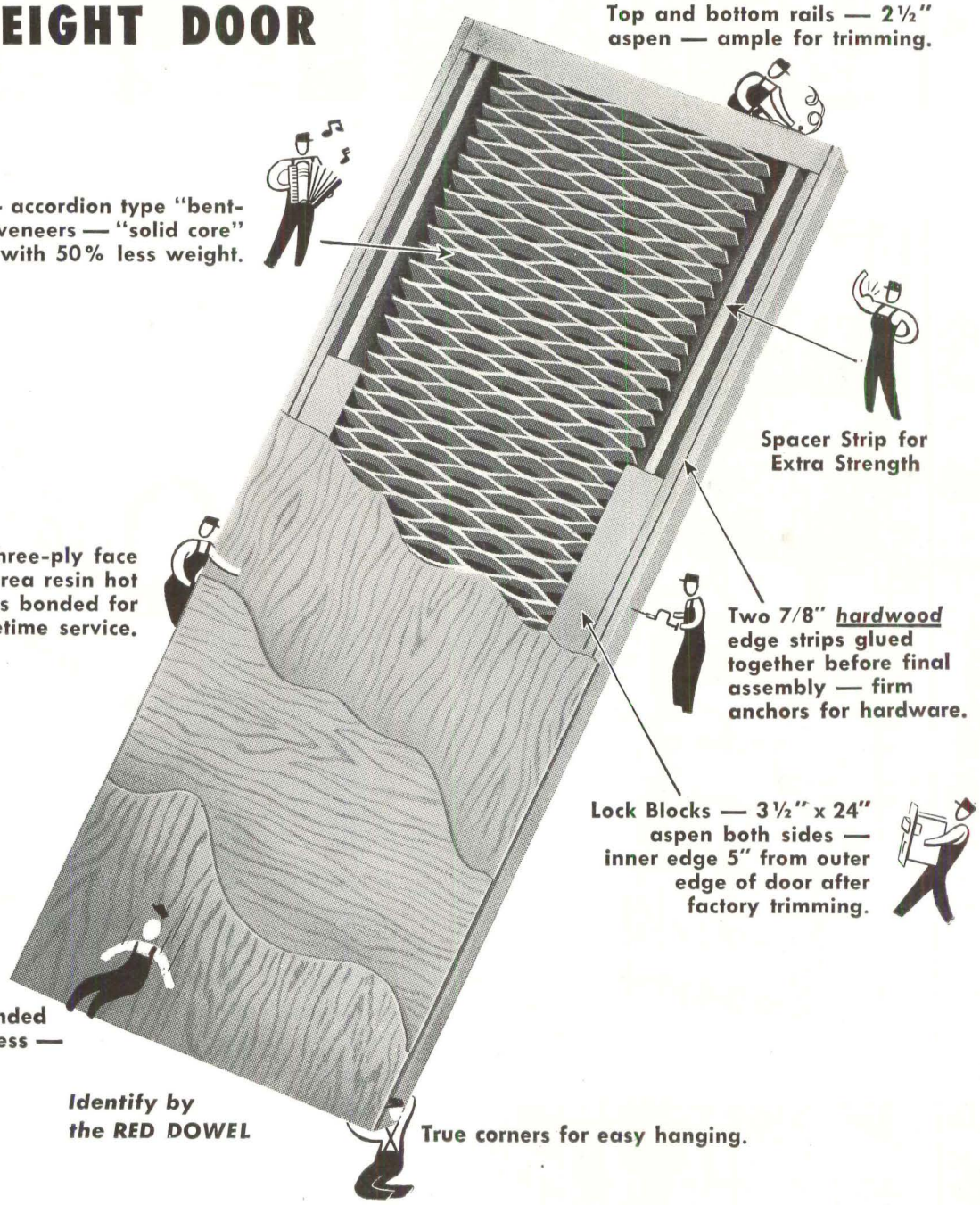
The limitations of the Ostwald system are clearly defined by Jacobson—its realm is purely that of sensation. There is no attempt to cross over into the *(Continued on page 230)*



CENTRAL SURETY AND INSURANCE CORPORATION
R. E. McGINNIS, President
HOME OFFICE KANSAS CITY, MISSOURI

Roddiscraft

QUALITY FEATURES IN THE NEW HOUSEMART LIGHTWEIGHT DOOR



The new **Roddiscraft** Housemart Lightweight Door shows the same craftsmanship and attention to detail that has made Roddis a symbol of quality for over half-a-century. The Housemart Door with the accordion veneer combines solid core strength with 50% less weight. Priced for the residential market.

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

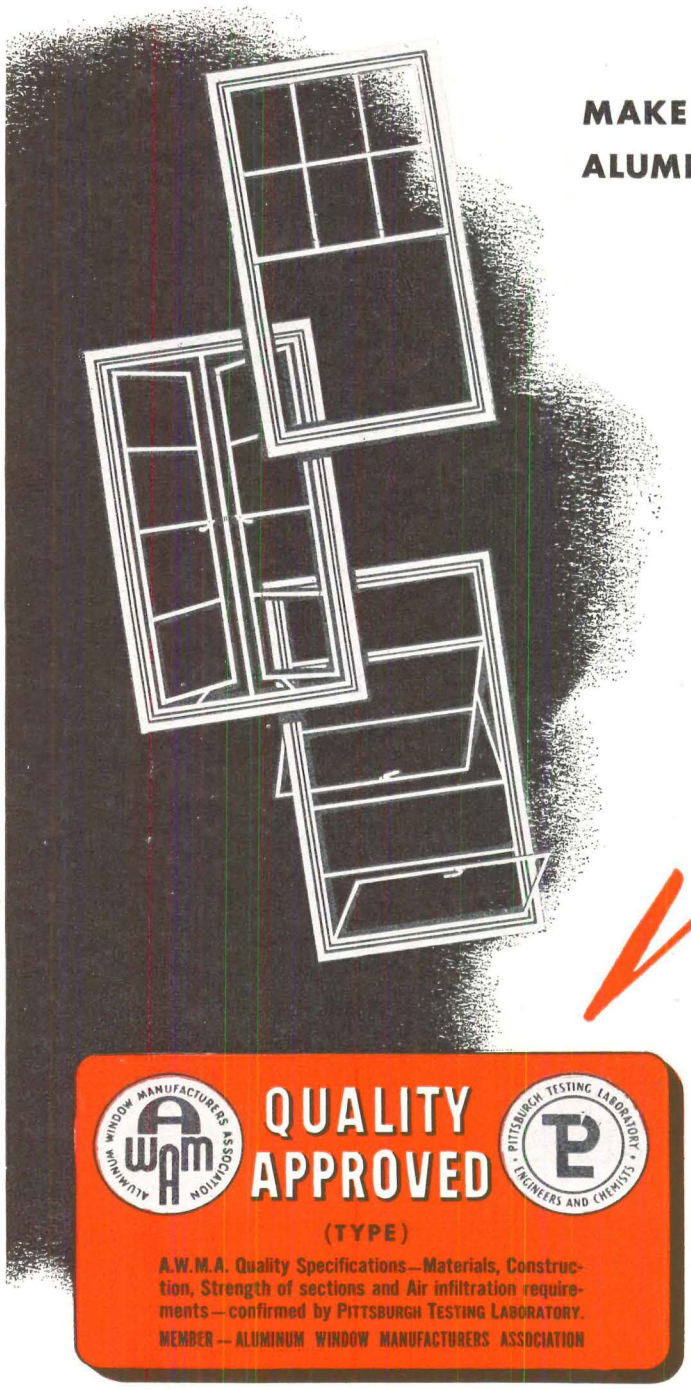
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Louisville 10, Ky. . . 1201-5 S. 15th St.
Marshfield, Wis. . . 115 S. Palmetto St.
Milwaukee 8, Wis. . . 4601 W. State St.
New York 55, N. Y. . 920 E. 149th St.
Port Newark 5, N. J. . . . 103 Marsh St.
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Quality Seal

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Clients *want* the advantages fine aluminum windows offer: good looks, ease of operation, low maintenance, never any painting, years of trouble-free service.

But—not *all* aluminum windows guarantee all these qualities.

You can make sure by specifying aluminum windows bearing the "Quality-Approved" Seal. This seal is used only by those manufacturers whose aluminum windows, when tested by the independent Pittsburgh Testing Laboratory, conform to rigid specifications.

The seal guarantees windows (double-hung, casement or projected types) that meet the highest standards for quality of materials, strength of sections, soundness of construction, and minimum air infiltration.

Make *sure* the "Quality-Approved" Seal is on the aluminum windows you specify. Consult Sweet's (Section 16/a) or write for complete specifications and names of manufacturers whose windows qualify for the Seal. Address Dept. F.

ALUMINUM WINDOW MANUFACTURERS ASSOCIATION — AWM

QUALITY APPROVED

PITTSBURGH TESTING LABORATORY — ENGINEERS AND CHEMISTS — PTL

(TYPE)

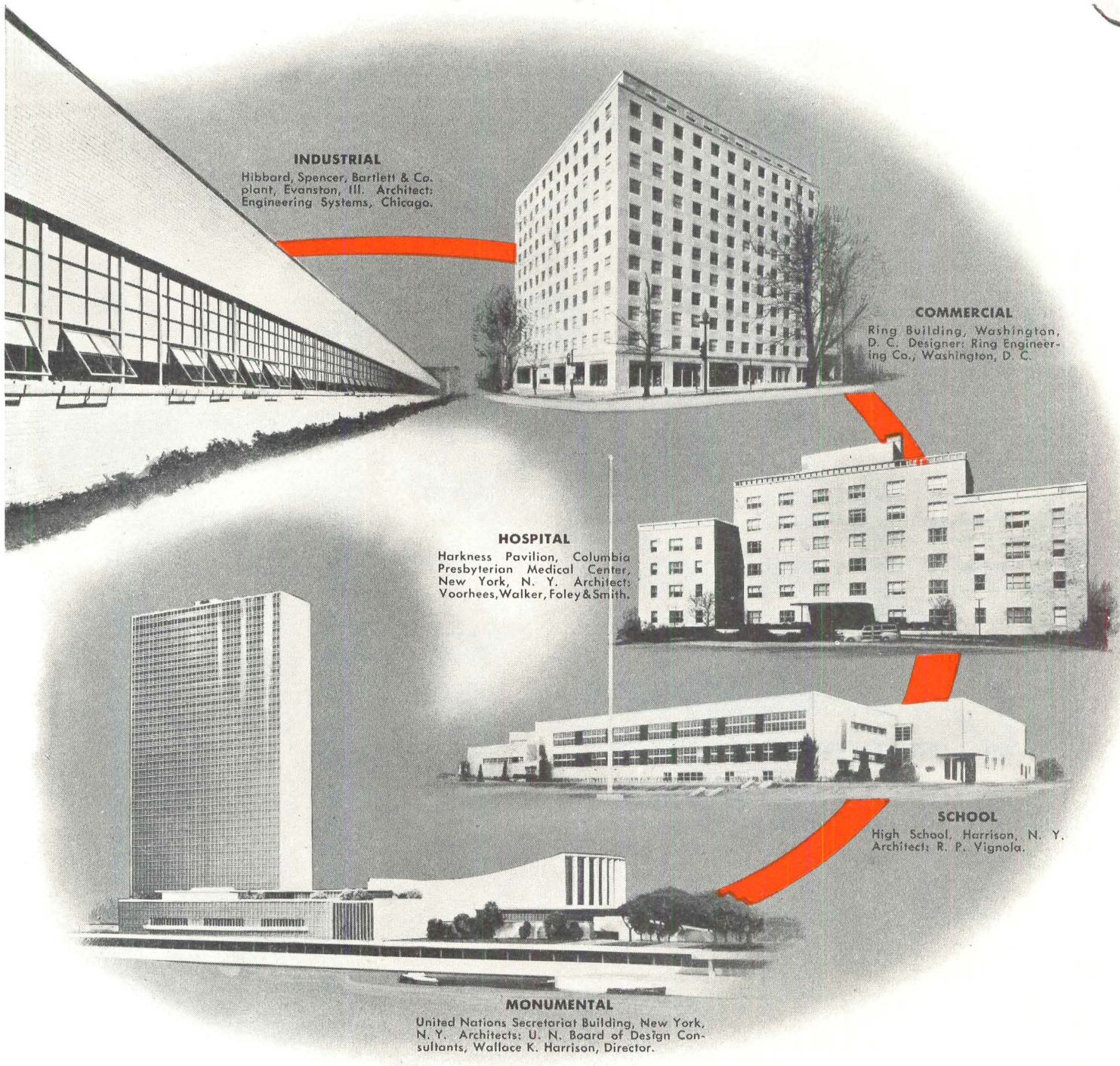
A.W.M.A. Quality Specifications—Materials, Construction, Strength of sections and Air infiltration requirements—confirmed by PITTSBURGH TESTING LABORATORY.

MEMBER—ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

Aluminum Window Manufacturers

the trend is more and more to

WINDOWS!



INDUSTRIAL
Hibbard, Spencer, Bartlett & Co. plant, Evanston, Ill. Architect: Engineering Systems, Chicago.

COMMERCIAL
Ring Building, Washington, D. C. Designer: Ring Engineering Co., Washington, D. C.

HOSPITAL
Harkness Pavilion, Columbia Presbyterian Medical Center, New York, N. Y. Architect: Voorhees, Walker, Foley & Smith.

SCHOOL
High School, Harrison, N. Y. Architect: R. P. Vignola.

MONUMENTAL
United Nations Secretariat Building, New York, N. Y. Architects: U. N. Board of Design Consultants, Wallace K. Harrison, Director.

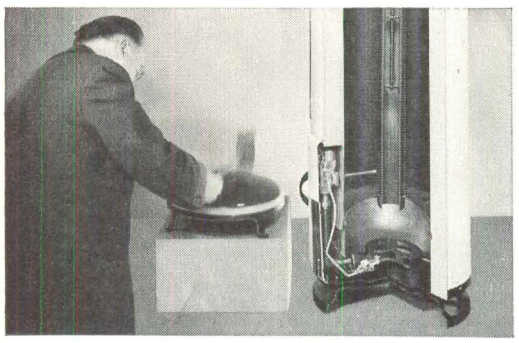
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A.O.Smith was first to give complete built-in protection against rust . . . because glass cannot rust.

This GLASS-SURFACED Steel Will Not Crack or Chip Under MALLET Blows!



DIAMOND-TOUGH GLASS surface of the bottom head of a *Permaglas* Water Heater tank withstands repeated blows from a wooden mallet without cracking or chipping. Blurred hand and mallet show the force of impact.

The Mallet Test—matched with the performance records of hundreds of thousands of installed units—is proof that the glass-surfaced steel tanks of *Permaglas* Automatic Water Heaters will not crack or chip under use conditions. They are fully guaranteed by A. O. Smith.

This built-in protection against destructive rust and corrosion, *engineered* for long life, is the reason "*Permaglas*" is the water heater that cannot rust . . . because *glass* cannot rust.

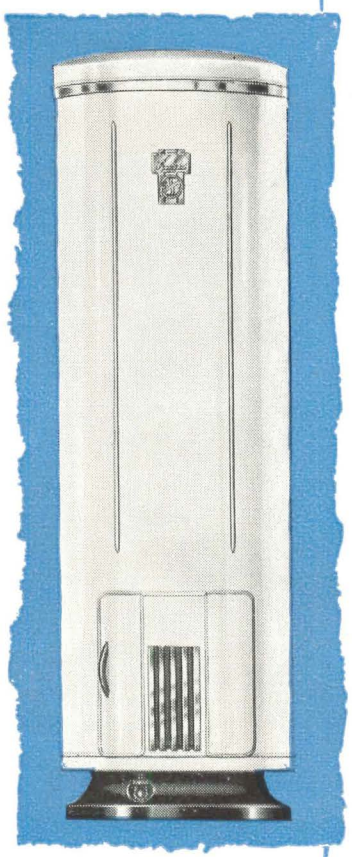
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ONLY PERMAGLAS Automatic Water Heaters provide the lasting rust protection of glass with the strength of steel. Yet this is just one of many research-developed features that make "*Permaglas*" first in completely satisfactory hot-water service.

Thermoelectric-type gas control, 100% automatic safe-lighting, is designed to automatically shut off all gas to the heater, should pilot flame ever be extinguished. Standard equipment. Other features, of equal sales advantage, are standard in models for all types of gas.

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Sizes for all needs, for all types of gas.

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*Also quality zinc-lined *Duraclad* and *Milwaukee* Automatic Water Heaters

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● Section of 789 apartment homes in Hancock Village, Brookline, Mass. Owned by John Hancock Mutual Life Insurance Co. Designed and built by Ring Engineering Co., Inc.

How to cut maintenance costs



● Hotel Martinique, Miami, Fla. Architect: Roy F. France, Inc.

Here's sound planning . . . the kind that puts building operation on a money-making basis . . . *specify* Alwintite aluminum windows.

With this one specification you completely eliminate the expense of window painting—this year and every year. You slash repair bills, wipe out the cost of periodic window replacements. You provide a good-looking, easy-operating lifetime asset for any building.

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Alwintite offers many outstanding patented features. It is quality-built, quality-tested (*by an independent laboratory*) and quality-approved. The manufacturer is the largest and most experienced in the field.

You can get Alwintite aluminum windows in 25 stock sizes, four styles, with screens and storm sash to fit. Picture and basement windows, as well as mullions for multiple window arrangements, are also available. Warehouse stocks are maintained by leading building materials dealers everywhere.

For complete information, see Sweet's Section 16a/2b or write for catalog, Dept. AF-4. The Aluminum Window Corporation (*A subsidiary of General Bronze Corp.*), 1004 Stewart Avenue, Garden City, N. Y.

● Flippen D. Burge Apartments, Georgia Tech, Atlanta, Ga. Architects: Stevens & Wilkinson, Inc. Contractor: J. A. Jones Construction Co.



Alwintite windows are also being used in many other housing projects, including: Valley View Housing Project, Providence, R. I.; Madison Housing Project, Madison, Wisc.; Manchester Housing Project, Manchester, N. H.; Fordham Hill Housing Development, Bronx, N. Y.; Oak Ridge Housing Development, Oak Ridge, Tenn.; Meadowbrook Housing Project, Houston, Texas; Phillips Apartment Buildings, Bartlesville, Okla.

QUALITY APPROVED
DH-A1
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ALWINTITE*
ALUMINUM WINDOWS

*Reg. U. S. Pat. Off.

"BUILD RIGHT WITH ALWINTITE"



add it up...

Building with "PENTA"-treated wood means:

1. LOWER BUILDING COSTS

Building costs less with PENTA chlorophenol-treated wood... wood protected from decay and termites. In many instances "PENTA"-treated wood effectively replaces more costly materials.

2. FEWER MAINTENANCE WORRIES

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3. ADDED BUILDING PERMANENCE

"PENTA" adds permanence to wood's acknowledged versatility, excellent insulating qualities, and easy workability. In addition, "PENTA" leaves wood clean and easy to handle . . . creates no personnel problems.

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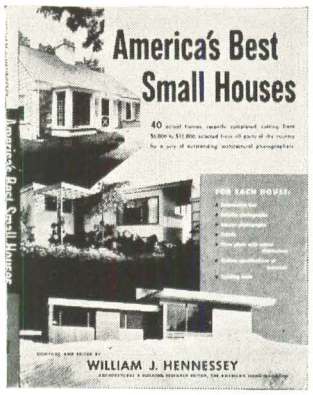
THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

realm of psychology or to determine conditioned preferences and dislikes. It leaves to artists, on the other hand, the imaginative use of its findings. "Knowledge of color no more makes the artist," says Jacobson, "than a knowledge of grammar makes the poet."

In its own intermediary field, however, it is undoubtedly a landmark—which amply fulfills its claim to direct those "who wish to know how the laws of vision and principles of harmony may be applied to every-day problems, whether these be painting on canvas, the painting of living rooms or of railway stations, the color of textiles or of packages, of fashions or of factories."—S. K.

AMERICA'S BEST SMALL HOUSES by William J. Hennessey. Published by Viking Press, New York. 196 pp. Ill. $3.95.

Only three years ago the preface to a book of small houses contained this statement—"The authors believe that in houses designed in the modern functional style you get more for your money. But there is no point in including primarily 'modern houses' when . . . most of the beautiful modern designs . . . are slanted at the $20,000-$30,000 pocketbook."*



It is interesting to contrast such a statement with the preface of the book published last month by the architectural editor of a far-from-radical magazine, *American Home*. In this book of low-cost houses ($6,000-$15,000) fully three-quarters of those included are modern, not only in layout but in clear-cut design details. The advantages of the flat roof, radiant heating, built-in storage and furniture units, window-wall, use and control of solar heat—all these factors are more or less adequately demonstrated in the majority of houses presented. Proper orientation and a careful relation of indoor-outdoor living are now taken for granted in any well-planned house, whether it costs $6,000 or $60,000.

Author Hennessey realizes this (a little uneasily, it seems) and accounts for the phenomenon thus to his non-professional audience: "The fact that many of the houses are definitely modern in design is easy to understand when one considers the fact that every major architectural school in the country is stressing contemporary architecture to the exclusion of all else. Whether or not one approves of this trend, one must be realistic enough to recognize that the graduates of such schools will practice what they have been taught and so spread their gospel throughout the land. Remember that all architectural styles were modern when they were new. Advanced methods of planning and new uses of materials, plus that new look have much to recommend them, as thousands of contented home owners can attest." Here, from an unexpected source, is balm for the long-berated modern!

The 40 houses collected in the book represent a better-than average selection of recently designed small residences. California, as usual, accounts for the lion's share (14 out of 40) Of the traditional houses included, it is interesting to note that all are variations of the Cape Cod type. Only this among "style" houses, apparently, can compete with modern in the low price field. Each house is generously alloted a four-or-five page presentation. The good grade *(Continued on page 234)*

* *Book of Houses* by John Dean and Simon Breines.

FRESH MEADOWS puts the accent on

light...fresh air...convenience

....with central heating

Not a mere "housing development" but a completely integrated, self-contained community for better *family living* for 10,000 people. That is Fresh Meadows, the New York Life Insurance Company's residential development in Queens.

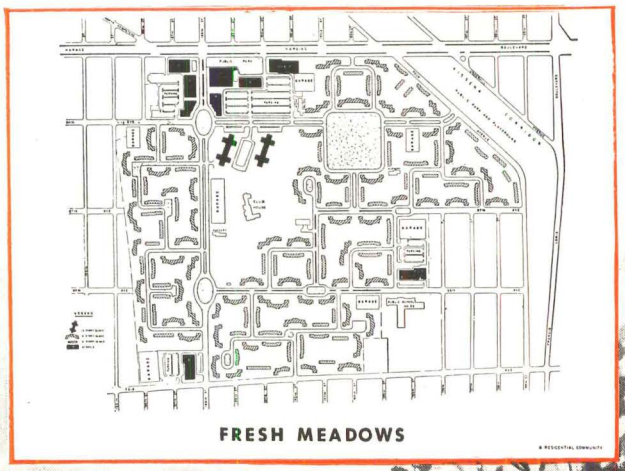
Preserving all the natural beauty of its 170-acre site—a former golf course—Fresh Meadows emphasizes healthful living advantages combined with the shopping and social conveniences of a closely knit community.

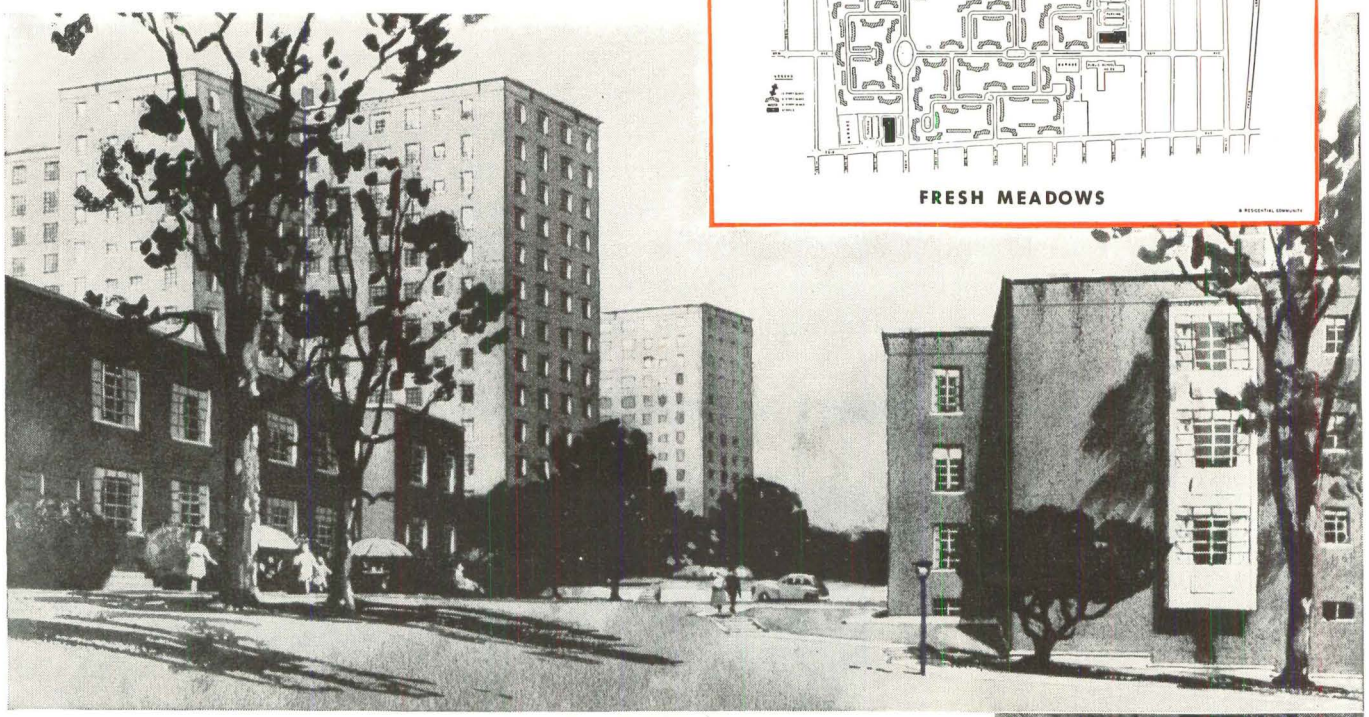
A population density averaging 20 families per acre has been achieved through skillful arrangement of the project's 70 two-story, 68 three-story and 2 thirteen-story buildings. Shopping centers, schools, playgrounds, parking areas, etc., have been located with careful consideration to traffic flow.

Accenting as it does the priceless health advantages of light, fresh air and cleanliness, with maximum convenience for all, it is only natural that Fresh Meadows provides Central Heating for the entire community. Through Central Heating uniform, clean heat is furnished with economy in fuel consumption. It eliminates the problems usually connected with individual heating plant operation and permits maximum usefulness of space.

It is only natural, too, that widespread use is made of Ric-wiL Prefabricated Insulated Piping throughout Fresh Meadows' Central Heating system. High thermal efficiency and maintenance-free service make Ric-wiL Units the logical choice in today's Central Heating systems.

Architects: Voorhees, Walker, Foley and Smith
Contractor: J. L. Murphy



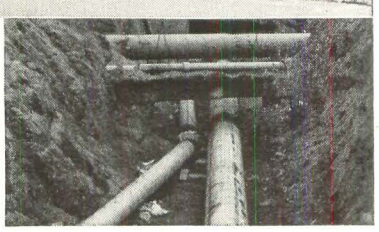


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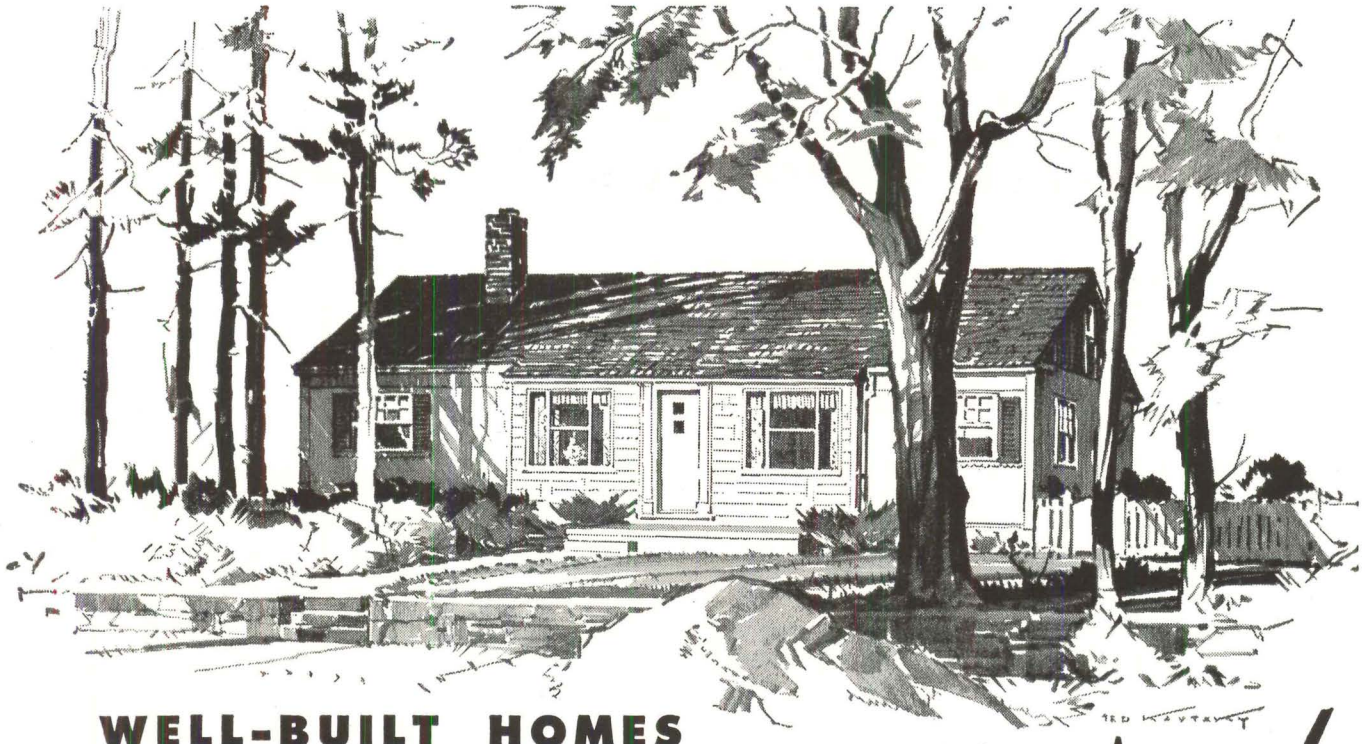
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REPRESENTATIVES IN PRINCIPAL CITIES



Ric-wiL Units being installed in shallow trench at Fresh Meadows

Write for free books, "Housing America," Form 4804 and "A Central Heating Plan," Form 4503. Address The Ric-wiL Company, Cleveland, Ohio, Dept. 4G.



WELL-BUILT HOMES

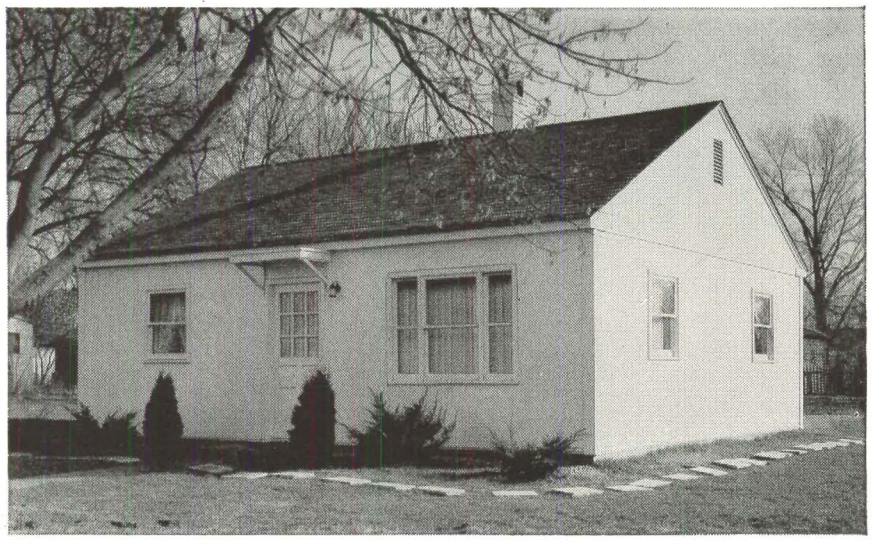
Priced for the Mass Market!

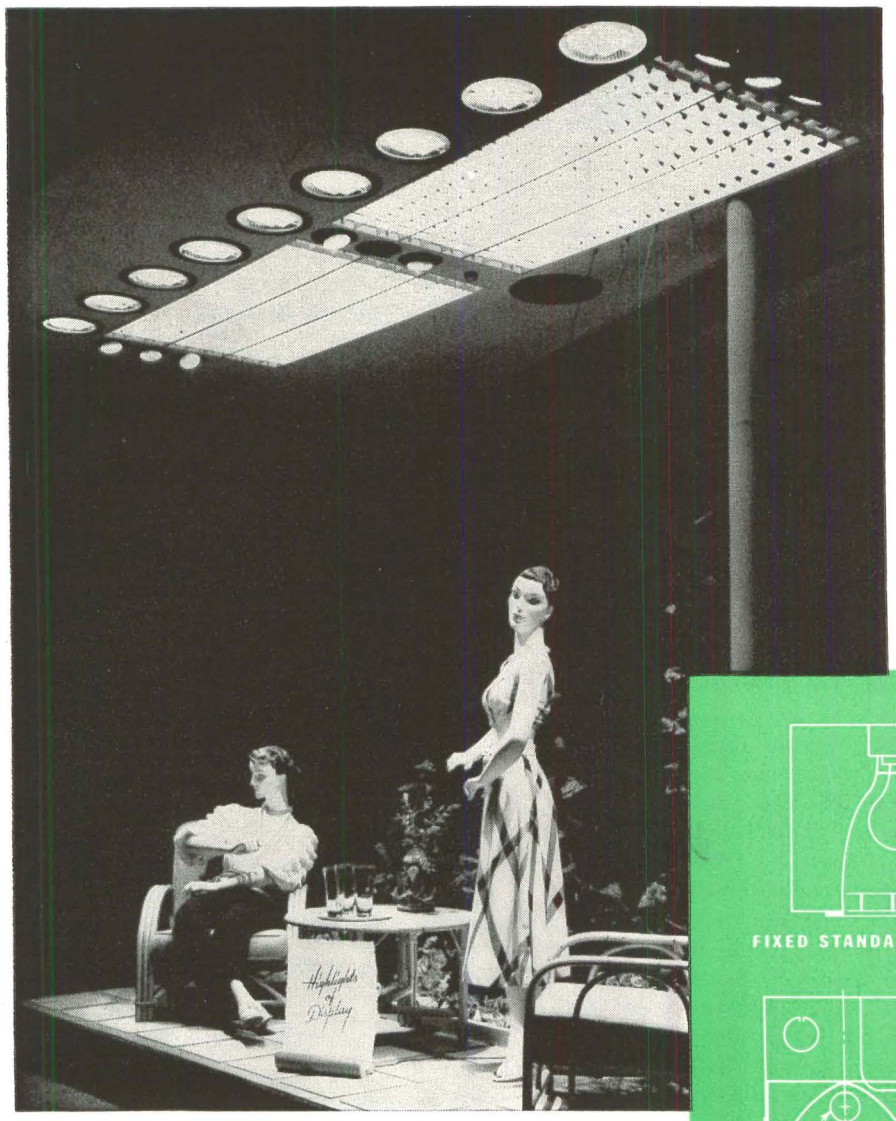
● National Homes' choice of well-built, traditionally styled houses, beginning with the "Thrift Home" at approximately $6,000 and ranging upward in price to about $13,500 for a four-bedroom, makes them today's most popular homes. Exterior designs and floor plans meet varied practical needs and tastes, and prices are within the reach of the largest segment of the market. Indeed, the "Thrift Home," produced in both two and three-bedroom sizes, is placing home ownership within the reach of thousands of families for the first time. National Homes are sold only through authorized dealers.

ALL NATIONAL HOMES ARE ELIGIBLE FOR FHA INSURED MORTGAGES

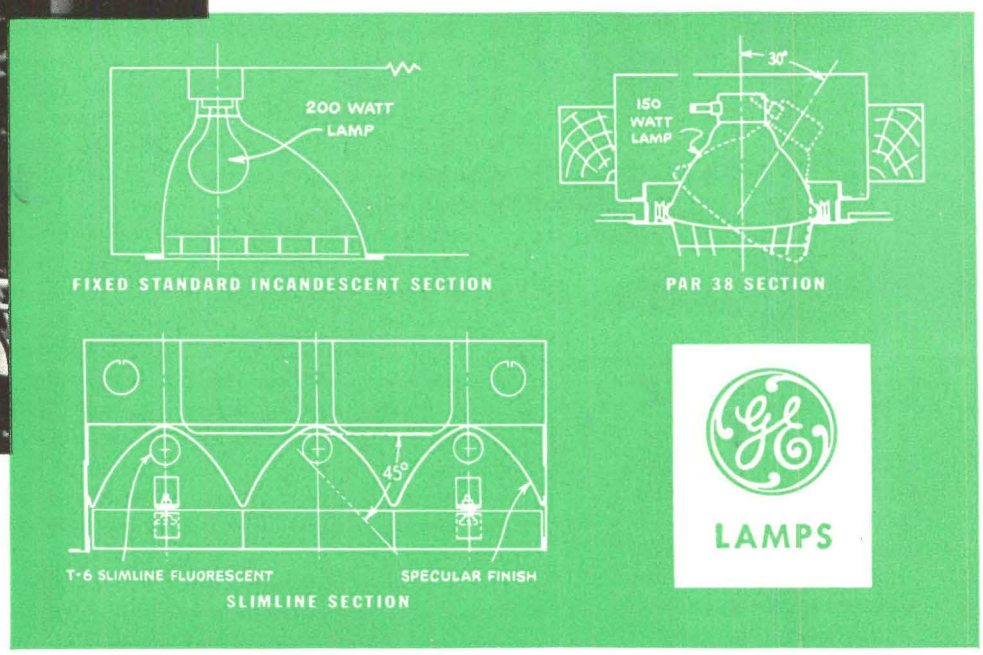
● *Send for our Brochure of the complete line of National Homes and information about "Thrift Home" shown at right.*

National HOMES CORPORATION
LAFAYETTE, INDIANA, U.S.A.





HOW TO MAKE A WINDOW SHINE



To catch a customer's eye and show him the merchandise at its best, a show window needs a complete, flexible lighting system—like the one above.

General Electric slimline fluorescent lamps in parabolic reflectors bring out color, texture and details of the display. They have high efficiency and provide cool lighting. The G-E incandescent lamps raise the over-all brightness of the window to draw more attention. And the G-E PAR-38 projector spot and flood lamps in movable fixtures put highlights right where the display man wants them.

Whether you're designing a show window or a complete store, an office, factory or home, be sure to specify General Electric lamps. That's the easy, sure way to specify quality. General Electric makes a lamp for every lighting need, all constantly improved by research to STAY BRIGHTER LONGER.

You can put your confidence in—

GENERAL ELECTRIC

CHOOSE THE BEST FOR YOUR DESIGN FROM THE MOST COMPLETE LAMP LINE



FLUORESCENT
Many types, sizes, colors now available.



REFLECTOR FLOOD
lamps. Built-in reflector directs light where needed.



PROJECTOR
Spot or flood. Rugged moulded glass permits attachment of accessory.



SILVERED BOWL
Indirect lighting at low cost. 60 to 1000 W.



REFLECTOR SPOT
lamps. Narrow beam, high intensity lighting.

GAIN VALUABLE SPACE

SPECIFY GRANT

Over half a century of progress . . .

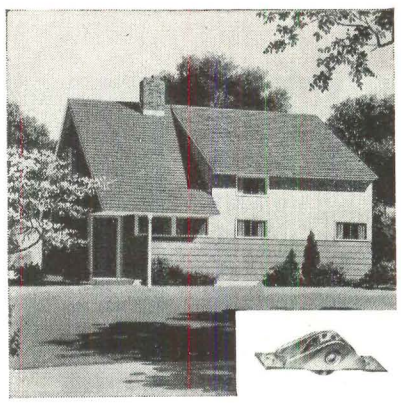


Illustration shows Grant No. 20 Sheave, used in the Levittown Home of 1949, Levittown, Long Island.

Maximum area in minimum space! Grant Sliding Door Hardware offers 9 square feet of space saving — of space economy over conventional hinged doors.

Grant Sheaves and Track, equipped with self-lubricating bronze bushings insure a lifetime of service. This least expensive method for sliding doors has proven outstanding in cabinet and closet work . . . combining the beauty of modern design with the performance pleasure typical of *all* Grant Hardware.

Grant Sliding Door Hangers meet every sliding door need. Built for varying load capacities, head room dimensions and types of mounting, these ball bearing hangers guarantee *consistent* ease of operation . . . are your guarantee for *consistent* satisfaction.

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Ball Bearing Drawer Slides
Elevator Door Hangers
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GRANT
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Broadway at 57th St.
Woodside, N. Y.

REVIEWS

of paper allows clear printing of photos and simplified plans. Specifications for principal fixtures are provided.

One cannot help wondering, however, about the accuracy of the price tags pinned on each house, especially since the preface claims that most are of 1948 vintage. With costly items like brick, lumber, and glass not visibly stinted, it would seem only good sportsmanship of the author to give Average-Reader Blandings a few more hints as to just where cost-nicking methods were applied.—S. K.

ARCHITECTURAL DRAWINGS FOR THE BUILDING TRADES. By Joseph E. Kenney and John McGrail. McGraw-Hill Book Co., New York. 128 pp. Ill. $3.

Royal Barry Wills says, in the foreword to this book, "Men of all viewpoints regret that the great complex of technical information and precisely prepared drawing that lies between this first stage (basic concepts) and the erection of the building has been largely a mystery to the student upon leaving school." *Architectural Drawing for the Building Trades* is, then, a text-book which goes through the various stages of draftsmanship to the point where the reader may be considered sufficiently competent in the use of tools and ready for the study of design.

Kenney and McGrail assume not necessarily a graduate architect as their reader, but an intelligent builder, tradesman or estimator. The material is arranged so that the reader acquires an intimate knowledge of all construction details before he is presented with any work on plans and elevations. Eighteen well-illustrated chapters are devoted to various studies in detailing. As the reader progresses, he is given a step-by-step description of how to make a complete set of working drawings for a house. Though the book is concerned primarily with house construction, instructions are also included for the preparation of a set of working drawings for a modern store.

The authors state very clearly at the outset that this book is not concerned with design, but by the very choice of designs presented, the student will find himself designing a traditional house. In Lesson 29 on elevations, the authors state, "For this lesson it is assumed that the design has been decided upon. . . ." It would be quite difficult to plan a house from the inside out if these instructions were followed.—W. W. A.

UPHOLSTERING HOME FURNITURE by Blanche Romick Pope. Manual Arts Press, Peoria, Ill., 296 pp. Ill. $3.

Such a book as this, while it is written primarily for the consumer, may, if the present trend toward built-in furniture continues, find a place in offices of architects and builders. Just because a man understands how to design and build waterproof basements, cavity walls and roof trusses, there is no reason to suspect that he will understand the intricacies of furniture construction. As much time and effort have gone into cost cutting methods in the design of low cost furniture as have gone into the design of the low cost house. Miss Pope not only knows all the secrets of the trade but she, necessarily, lets them out.

While there are a few professionals who may find "Upholstering Home Furniture" useful, the book will be a God-send to the consumer who wants to re-upholster overstuffed chairs and sofas or build his own from the ground up. Miss Pope's manual covers all phases of upholstering from spring tying to the conversion of old kitchen chairs into upholstered pieces. There is an entire chapter devoted to the various shapes and types of cushions, how they are made and how to make patterns for their covers. The book is profusely illustrated with photographs made on the job and with easy-to-understand line drawings.—W. W. A.

Memo to:

THE ENGINEER AND DRAFTSMAN

WHO CARE!

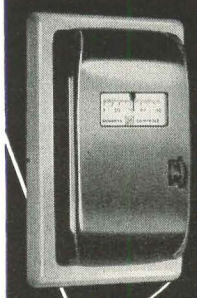
Discriminating engineers and draftsmen want the best in working tools. When it comes to pencils, they choose the only imported drawing pencil in America—MARS-LUMOGRAPH Drawing Pencil No. 2886.

Several of its most oustanding features are: extra-dense opaque lead, smudge-resistant graphite and uniformity of lead hardness.

Try MARS-LUMOGRAPH and compare results. At your dealer's. Write direct for nearest supplier, or order sample dozen MARS-LUMOGRAPH Drawing Pencils direct from Dept. 5A for $1.50. Also MARS-LUMOGRAPH Artist Pencils #1018 at $1.00 each, and #1904 MARS-LUMOGRAPH Artist Leads, 6 for 60¢.

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Sets a new standard of Functional Beauty and Accuracy in remote control of room temperatures. This graceful, streamlined instrument extending only 1" from wall, has a stainless housing mounted on an ivory plastic base and lends enhancement to any scheme of room decoration.

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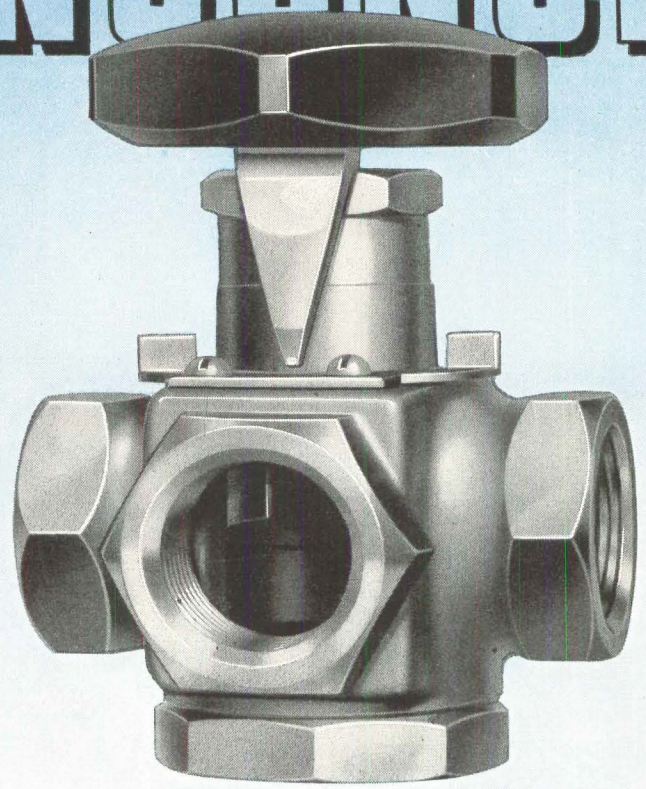
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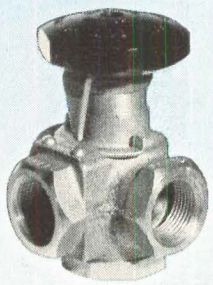
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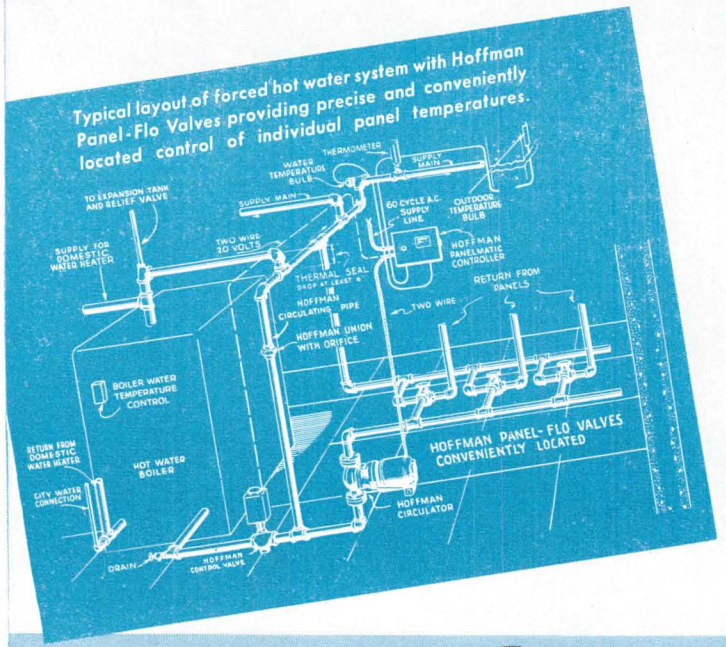
View of outlet connection to by-pass. The volume of water passed here exactly balances the volume of water cut down from panel.





View of outlet connection to panel. The flow here can be reduced as much as 60%. Flow to panel can never be closed off completely.

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FOR ADJUSTING THE HEAT OUTPUT OF ANY ONE PANEL WITHOUT AFFECTING THE HEAT OUTPUT OF THE OTHER PANELS

Here is the Valve everybody has been asking for —the Valve to solve the *unknown equation* in panel heating—QUICKLY, ACCURATELY, DEFINITELY! It gives a wide range adjustment of water flow to each panel—*can cut flow through panel as much as 60% . . .* WITH NO APPRECIABLE CHANGE IN CIRCULATING PUMP HEAD. Has indicating Dial for accurate setting of each panel—or adjusting any panel without affecting the other panels. *A must for every coil* of a well designed panel heating system.



Famous for HOFFMAN VALVES, TRAPS, VACUUM AND CONDENSATION PUMPS, FORCED HOT WATER HEATING SYSTEMS —*Sold by Leading Wholesalers of Heating and Plumbing Equipment Everywhere.*



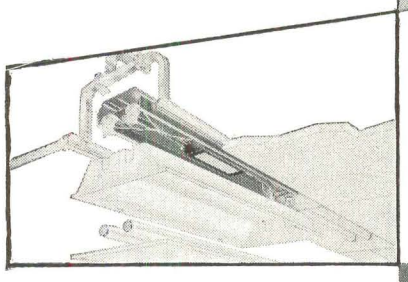
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Main Office and Factory: Dept. AF-4, 1001 York St., INDIANAPOLIS 7, IND.

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Important reasons for specifying miller fluorescent troffer lighting systems

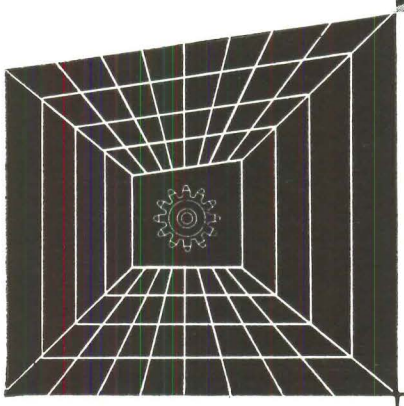
2



The patented Miller Ceiling Furring Hanger simplifies installation — makes it possible to arrange Troffers to form ceiling patterns as desired — CEILINGS UNLIMITED*. Channels are Bonderized for rust resistance.



Miller Troffers arranged in rectangular ceiling patterns with adjustable spots to high-light displays.



MILLER Troffer installations result in a finished lighting and ceiling job, adequate in illumination, architecturally pleasing, structurally sound and economically produced. Their versatility of application increases the functional value of lighting.

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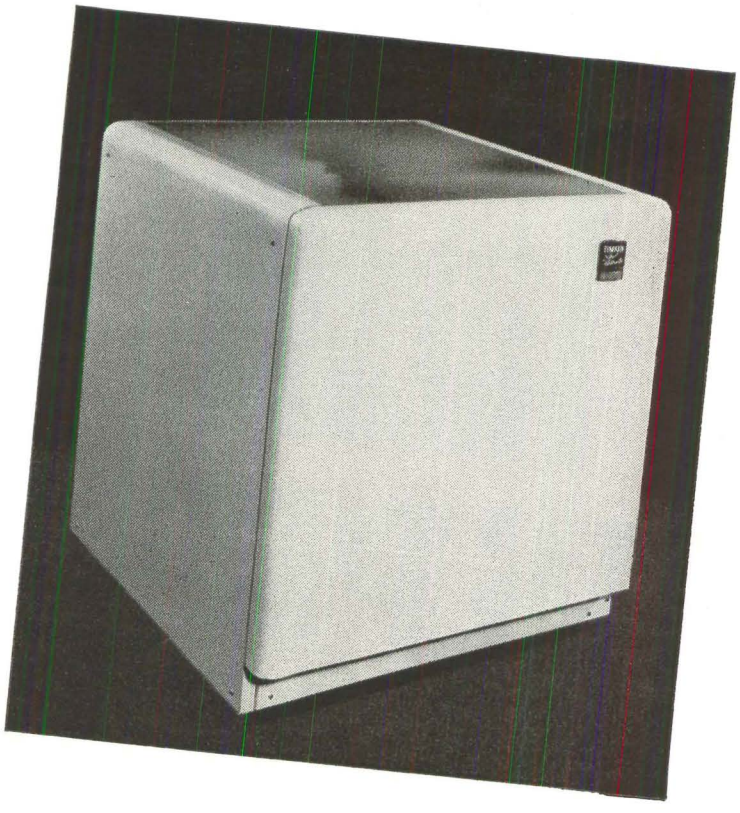
MANAGING EDITOR=

ARCHITECTURAL FORUM 350 5TH AVE NYK=

HAPPY TO ADVISE THAT LEVITT TWENTY-THOUSAND-DOLLAR CLASS HOMES FOR 1949 WILL BE EQUIPPED WITH NEW TIMKEN SILENT AUTOMATIC KITCHEN-TYPE OIL BOILER THAT CREATED SENSATION AT CHICAGO HOME BUILDERS SHOW• SINCE TIME DOES NOT PERMIT PREPARING STANDARD ADVERTISEMENT, PLEASE PUBLISH THIS TELEGRAM INSTEAD• PHOTO OF UNIT FOLLOWING BY AIRMAIL• UNIT CONSISTS OF OIL BURNER, STEEL BOILER, EXPANSION TANK, WATER HEATER, CIRCULATING PUMP, TEMPERING VALVE AND CONTROLS ALL COMBINED IN ONE 36" X 36" X 38" UNIT AND FINISHED IN WHITE WITH STAINLESS STEEL WORK TOP FOR KITCHEN INSTALLATION• DETAILS IN LITERATURE READY FOR DISTRIBUTION SOON=

T A CRAWFORD, TIMKEN SILENT AUTOMATIC DIVN,
JACKSON, MICH•=

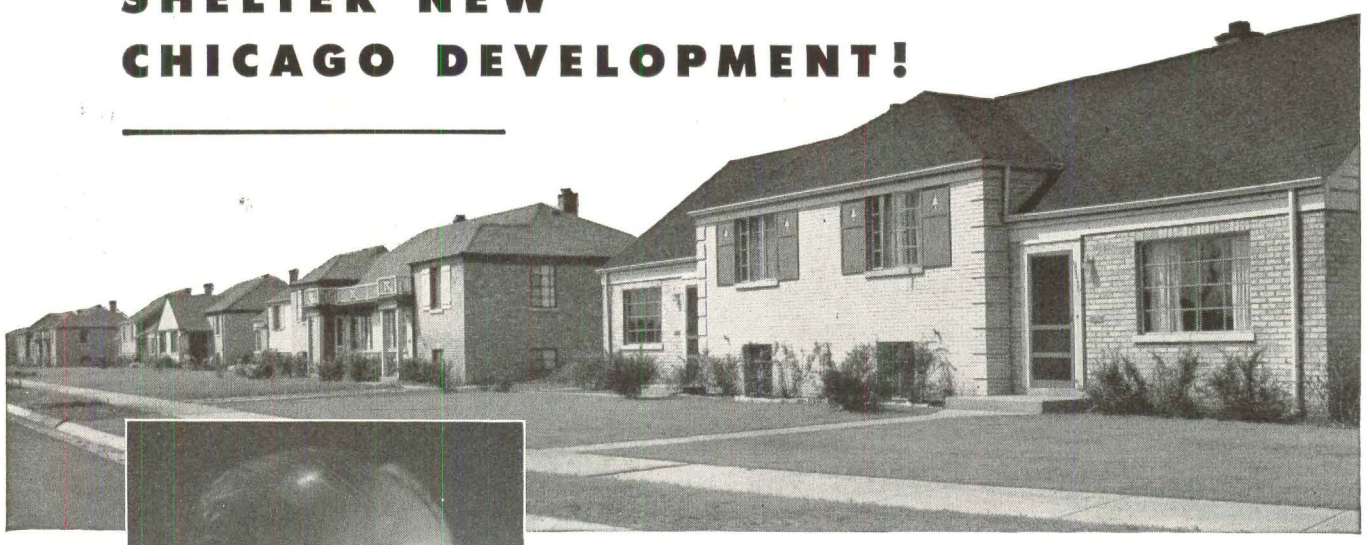
— and here it is!

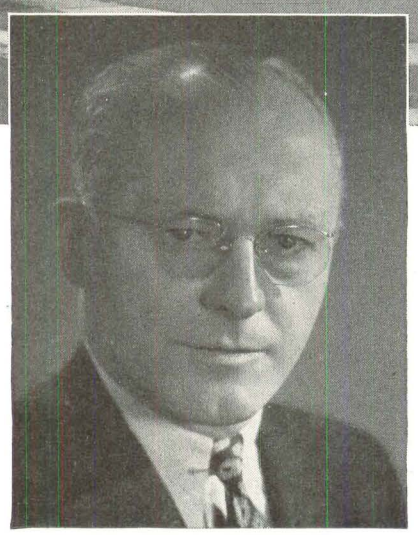


The sensational new kitchen-type oil boiler by Timken Silent Automatic.

ELEVEN THOUSAND SQUARES

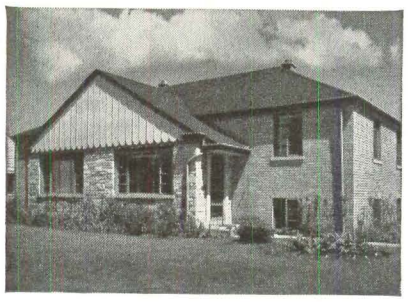
SHELTER NEW CHICAGO DEVELOPMENT!





JOSEPH E. MERRION
J. E. Merrion and Co., Chicago

Mr. Merrion has been in the building and real estate business in the Chicago area for 25 years. His firm has built several thousand housing units. Associated with him in planning Merrionette Manor were Earl Minx, architect, and William A. Dean, landscape architect. Mr. Merrion is a former president of the National Association of Home Builders.



J. E. Merrion Chooses *Asphalt* Shingles for His 542 Home Merrionette Manor

The fact that J. E. Merrion and Co. *know* that exactly 11,382 squares of asphalt shingles were used in roofing their homes in Merrionette Manor indicates how carefully they operate. The fact that they chose asphalt shingles indicates how carefully they plan. Because asphalt roofing *is* construction's biggest dollar's worth.

In deciding upon asphalt roofing, Merrion measured each basic advantage—one of which is the ability of asphalt shingles to provide a harmonious variety of roof colors and patterns. Colorful, clean-lined, fire-resistant asphalt shingles fitted perfectly into the plan to create a community of homes with individuality, yet in complete harmony with each other.

Match *your* requirements against the advantages of asphalt shingles—beauty, low cost application, weather resistance, fire resistance, durability—and you'll find they're your best buy.

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"Good Application Makes a Good Roof Better" is the message of the 24-page booklet now available. For everyone interested in roofing, it's a helpful guide . . . or a reminder. Contains step-by-step information about good application practices—with diagrams. Get free copy from a member company or write direct.



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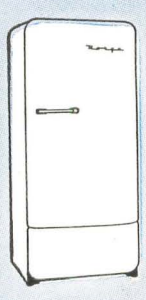
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The exclusive Concentrator burner, for instance, is the highest development in a top-of-range gas cooking unit. It promotes *quicker* cooking and *better* cooking, at the same time stretching the purchasing power of the owner's gas dollar.

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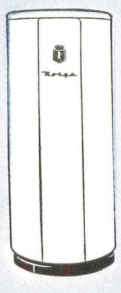
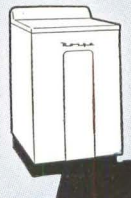
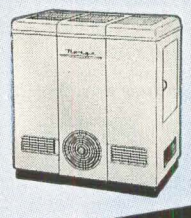


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MODEL FH-70-8 SPACE HEATER—Oil burning; choice of models with heating capacity range of 32,000 to 65,000 BTU's.



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TECHNICAL LITERATURE

WELDING PRACTICES. Design for Welding. Edited by Robert S. Green. The James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio. 1,024 pp. 5½ x 8½ in. Price $2.

Composed of abstracts from 82 award papers in the recent "Design-for-Progress" program of the Lincoln Foundation, this book contains 218 pages of information applying to the building field. Included are three chapters on the use of steel in building small houses. One of these covers the use of steel column assemblies for wood and stucco houses, a method which permits large spans for glass areas. Cost comparisons with straight wood construction are included. An arc welded steel house to compete with conventional wood construction is described in another paper also with comparative costs. Arc welded steel forms designed by the LeTourneau Co., for use in building monolithic concrete houses, are discussed in a third paper on small house construction. The remainder of the section on structures is devoted to steel framing, welded trusses and welded wall covering in commercial building and to steel bridges, viaducts, piers, etc. Architects and builders interested in technical data on the use of steel for building will find the structural section of "Design for Welding" valuable.

STEEL. Light Gage Steel Design Manual, January 1949. American Iron & Steel Institute, 350 Fifth Ave., New York, N. Y. 77 pp. 6 x 9⅛ in. Price $1.

Light Gage Steel Design Manual supplements the Institute's official *Specification for the Design of Light Gage Steel Structural Members* published in 1946. It includes tables of structural properties and other design information for the following basic sections: two-channels with stiffened and unstiffened flanges, back-to-back; two equal leg unstiffened angles, back-to-back; single channels and zees with stiffened and unstiffened flanges; equal leg unstiffened angles. The properties of these sections are tabulated for steel sheet or strip of thicknesses from .135 in. to .048 in., with nominal gage numbers from 10 to 18. Design charts are given for light gage structural members in bending and under compression; effective design widths for load determination and deflection determination. Examples of practical design problems illustrate the use of the tables and charts. A linear method for computing properties of formed sections is introduced in the manual, together with charts of properties and examples of the use of the method. Design of wall studs braced laterally and the qualifications of the bracing materials also are included.

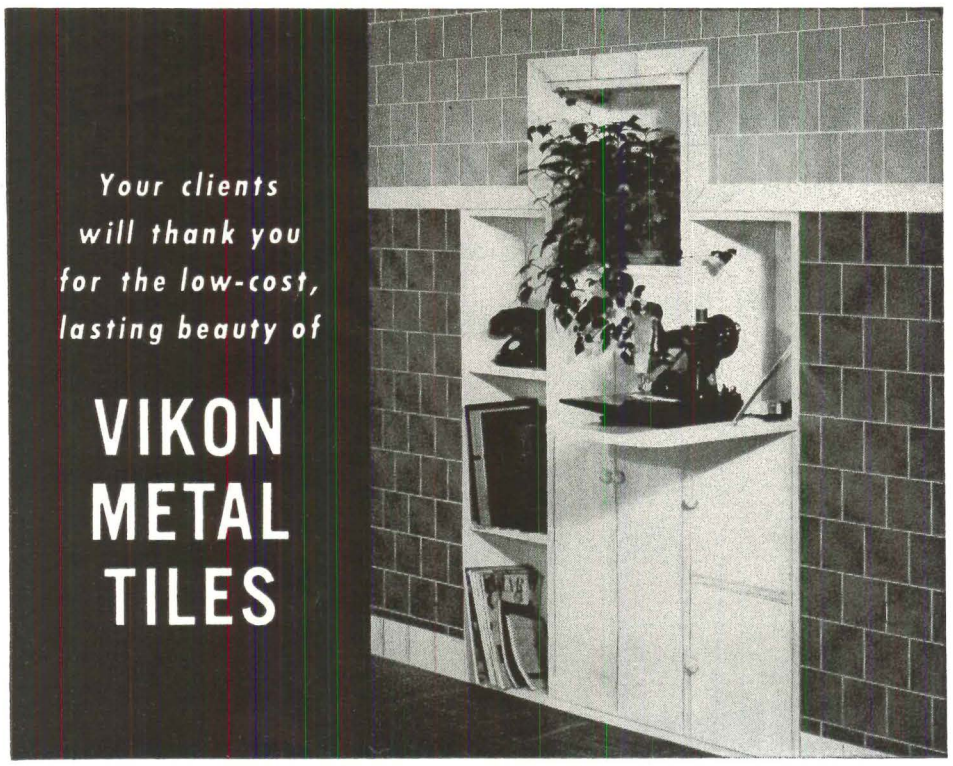
CHURCH DESIGN. The Church School and Parish House Building. Elbert M. Conover. The International Council of Religious Education, 203 N. Wabash Ave., Chicago 1, Ill. and The Interdenominational Bureau of Architecture, 297 Fourth Ave., New York 10, N. Y. 96 pp. 6 x 9¼ in. Price $1.50.

Architects who feel the call to improve church design should study this book carefully. The author, Elbert M. Conover, opens the door to good design a wide crack. *The Church School and Parish House Building*, is written primarily for the local (Protestant) church board of education, the pastor and others within the church concerned with new building. Its value to the architect lies in the author's statement that flexibility, simplicity and expansibility are important considerations in any church building although he implies that these features can be (tortuously) incorporated within the typical colonial or gothic shell.

Quite aside from questions of design, the book is of value to architects interested in church work. It discusses functions of church school and parish house buildings, problems confronting church school teachers, storage requirements, supply facilities, lavatories, nursery rooms, etc. Many a harrassed architect will be pleased, too, with the statement: "Beware of selecting architects who will cut their fees for the 'sake of the church,' who will offer to split fees or give reduced rates." After a discussion of fees the author says, "compared to other professional services this is a very reasonable charge." If an "N. B." is placed on these statements they will make wonderful ammunition to show any church board member who thinks the architect should contribute the design of a church.

GLASS BLOCKS. Better Farm Buildings. American Structural Products Co., Toledo 1, Ohio. 4 pp. 8½ x 11 in.

A few suggestions on how and *(Continued on page 246)*



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says Kenneth M. McCann, Vice-Pres. Trylon Studios
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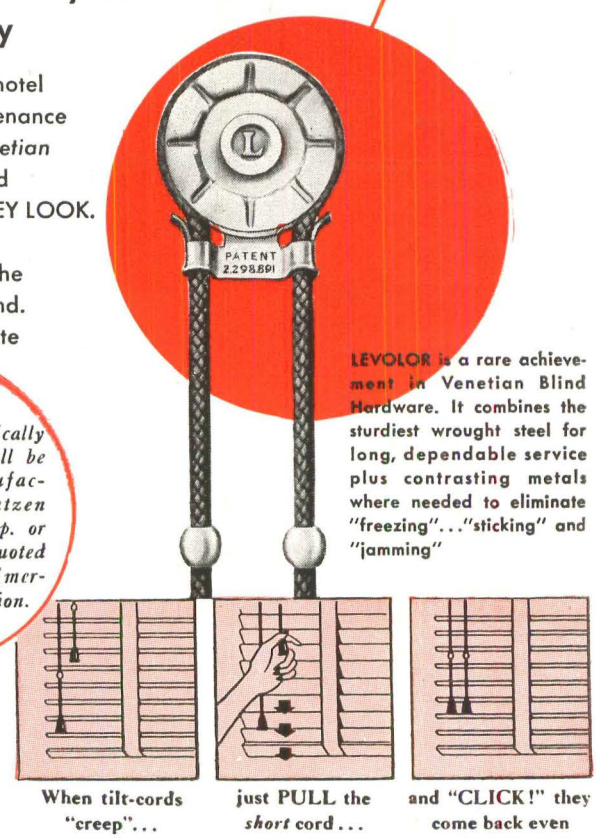
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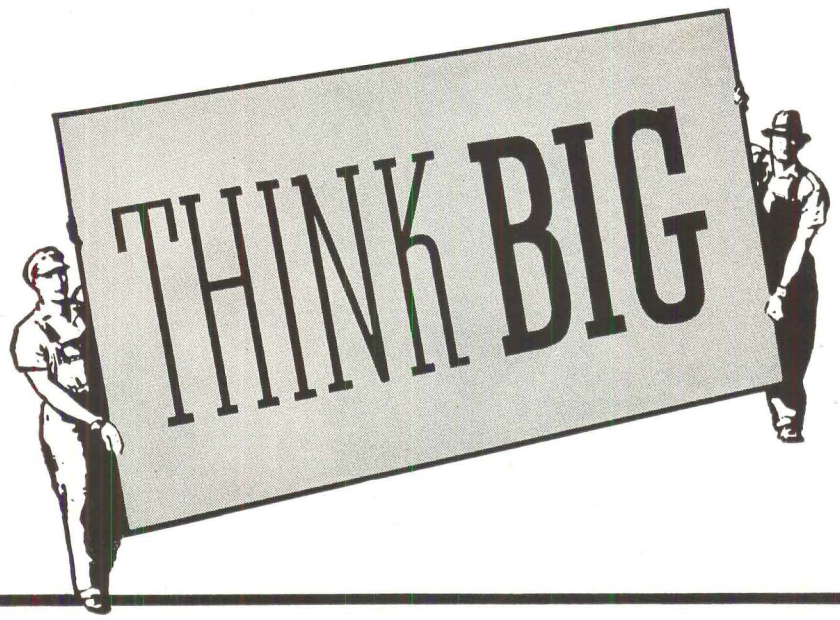
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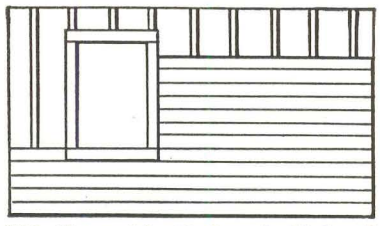
just PULL the *short* cord...

and "CLICK!" they come back even

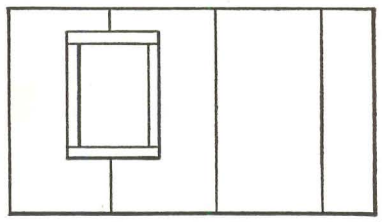
LORENTZEN HARDWARE MFG. CORP., 391 W. BROADWAY, NEW YORK 12, N. Y.



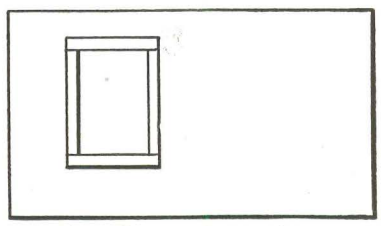
How many operations to sheathe one wall?



With 6″ material—16 pieces in 8′ of wall height



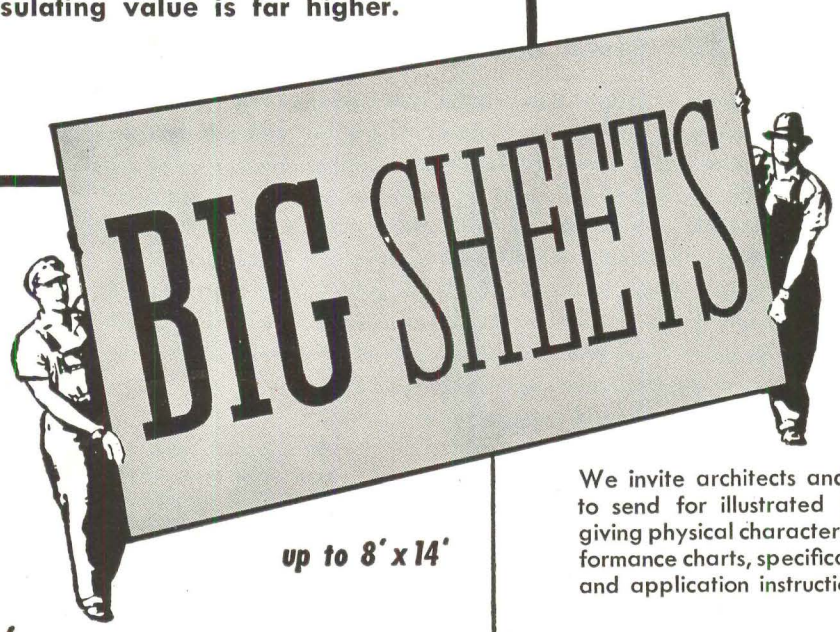
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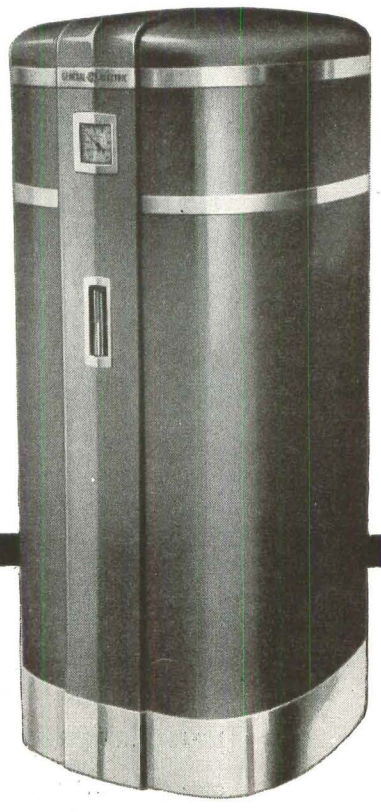
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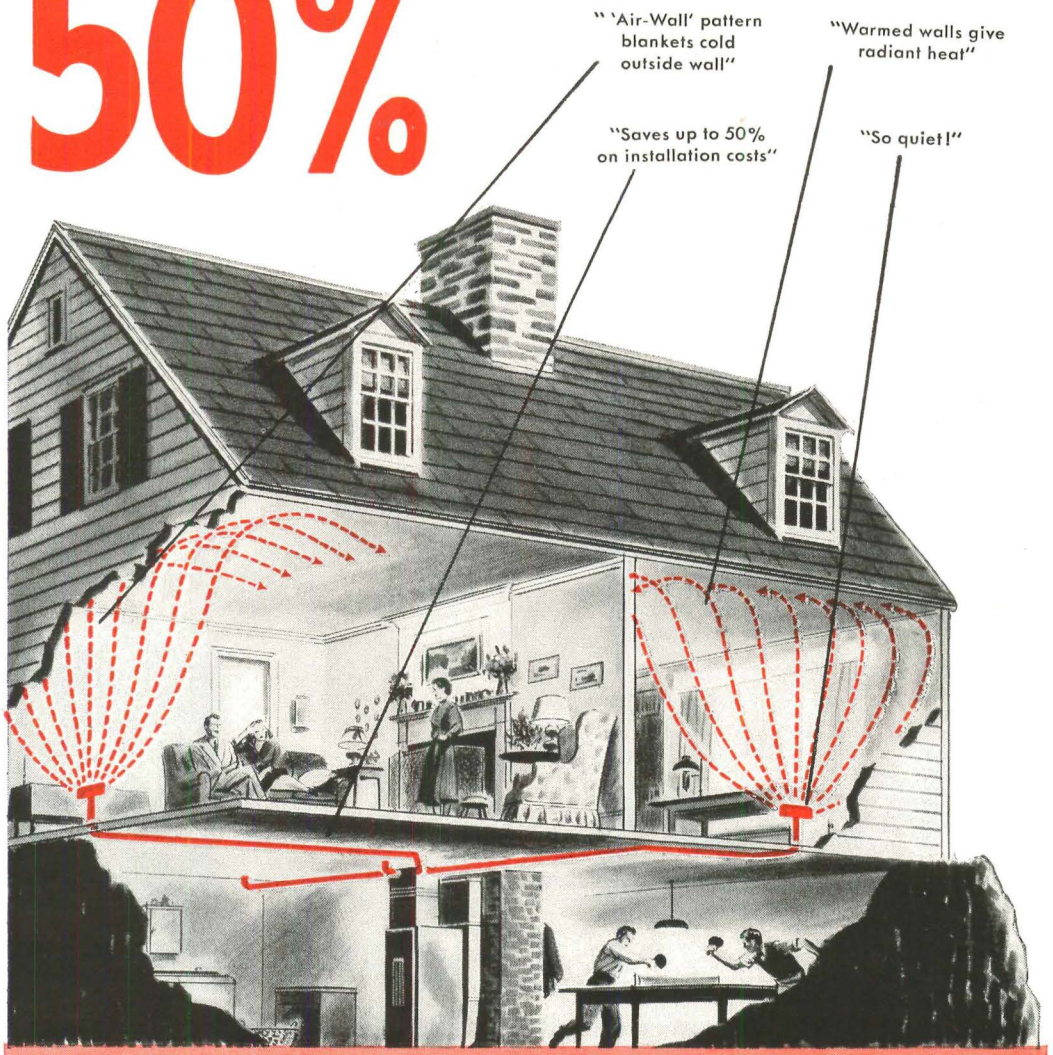
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reduces installation costs up to 50%



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FREEDOM OF FURNITURE PLACEMENT. You can sit directly in front of the *"Air-Wall"* Register and feel no draft...no uncomfortable hot blasts. In the morning, when the system automatically goes on, you feel no cold air which has been stored in the ducts.

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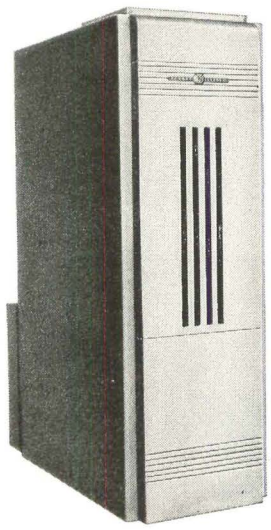
BUILDERS...TAKE NOTE: G-E *"Air-Wall"* Heating is engineered for low cost from furnace to rooms by the same famous standards long built into the G-E furnaces themselves. It's easier to estimate a job when you are planning to use *"Air-Wall."* It's easier and less expensive to install—because of the standard ducts, elbows and register boxes. The system can be installed in houses *with or without basements.*

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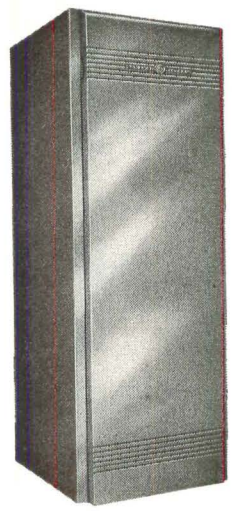
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General Electric GAS-FIRED Warm Air Furnaces... come in five compact sizes, the largest of which takes up little more floor space than an average-size refrigerator. You'll like their clean, *quiet* operation, their quick heat, their unusually high efficiency, their filtering which cuts down dust and dirt. They are approved by the American Gas Association and the Underwriters' Laboratories, Inc., and can be installed in confined spaces. All units circulate, filter and humidify the air. Designed for use with the new G-E *"Air-Wall"* system of heat distribution.

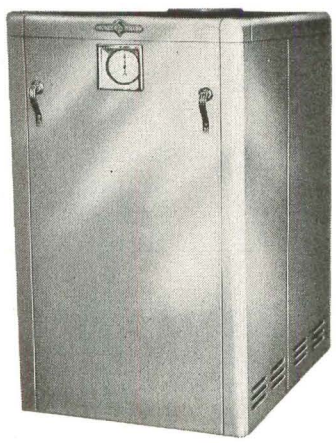


General Electric OIL-FIRED Warm Air Furnaces... come in four models...all of them low-cost, compact, easily installed, quiet and long-lasting. They are designed to save you money on fuel bills because of the compressed air-oil impact method of atomization of each drop of oil. This method assures you of efficient combustion and high heat-transfer rate, and a minimum of heat loss up the chimney. All four models circulate, filter and humidify the air. Designed for use with the new G-E *"Air-Wall"* system of heat distribution.



FOR STEAM OR HOT WATER HEAT, USE THESE FAMOUS G-E BOILERS

General Electric GAS-FIRED Boilers...turn gas fuel into low-cost comfort. Three to five minutes after the flame goes on, steam is sizzling in the radiators, or hot water is pouring out its warmth. Clean, complete and efficient combustion is accomplished through the use of raised port atmospheric burners. Each burner assembly is designed for the specific type of gas that is to be used. All models are approved by the American Gas Association. Heavily insulated, with jacket construction of heavy steel, these G-E gas boilers go into your basement to stay...and to give you top performance.



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These are products of the General Electric Air Conditioning Department, headquarters for commercial refrigeration, air conditioning, and home heating.

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G-E gas-fired furnaces ☐ G-E oil-fired boilers ☐
I enclose 10¢ in coin for each booklet

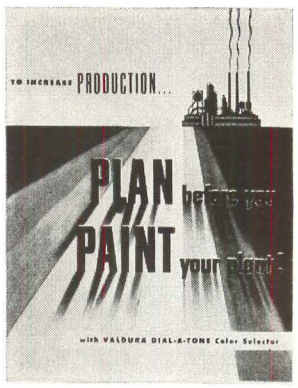
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TECHNICAL LITERATURE



where to use glass block panels in new and existing farm buildings are set forth in this folder. Illustrations show glass block panels installed in barns, milking parlors, milk houses, silos, henhouses, the farm bathroom and kitchen. One brief section explains the set-in-wood method of installing Insulux Glass Block Partitions without the use of mortar, another pictures five Insulux block face designs.

PAINT. Plan Before You Paint Your Plant. American-Marietta Co., 43 East Ohio St., Chicago, Ill. 12 pp. 8½ x 11 in.

Plan Before You Paint Your Plant recounts how selected colors increase production by improving visibility, saves money by reducing accident hazards and decreases work fatigue and absenteeism. Offering an industrial color system which keys colors to plant exposure, the booklet features a dial-a-tone color selector. By working the dial, 108 color combinations can be viewed for selection. Paint chips show available Valdura ceiling, wall and dado finishes.

BUILDING PAPERS. Richkraft, The Complete Line Of Building Papers. The Richkraft Co., Builders Bldg., Chicago, Ill. 1 pp. 9 x 12 in.

The various types of building papers in the Richkraft line—their advantages, sizes and uses—are discussed in this sheet. Specific information on specifying paper is helpful.

ASPHALT TILE. Floors That Endure, Tile-Tex Asphalt Tile. The Tile-Tex Co., Inc., Chicago Heights, Ill. 16 pp. 8½ x 11 in.

The 34 colors in the Tile-Tex flooring line, 12 good examples of possible floor designs, and numerous installations in stores, offices, institutions, public areas and homes are illustrated colorfully in this pictorial presentation. Descriptive information is brief but includes data on connection strips, cove base, reducing strips; floor protection, cleaning and waxing.

INSULATED PIPING SYSTEMS. Underground Steam Distribution Engineering Data Section. Insulated Piping Systems Typical Engineering Drawing Section. The Ric-wiL Co., Union Commerce Bldg., Cleveland, Ohio. 34 pp. 40 pp. 8½ x 11 in.

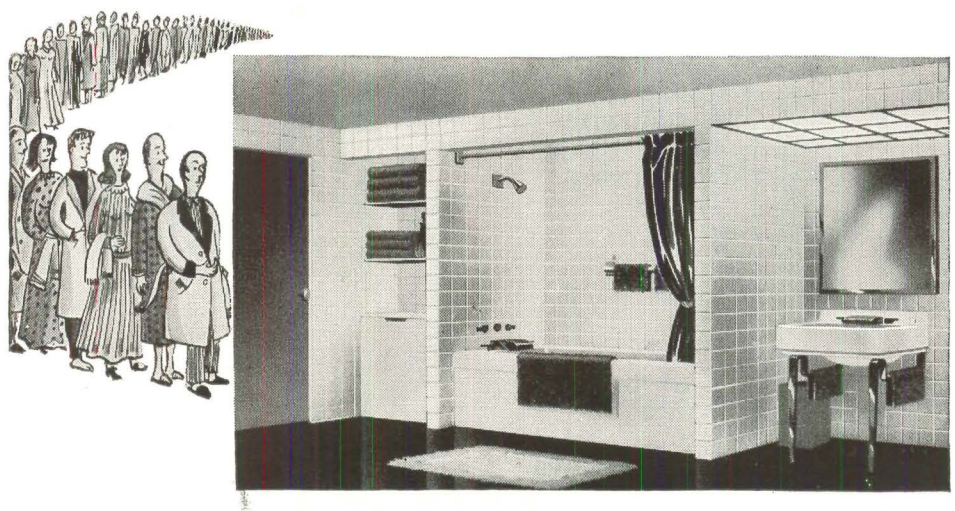
These two booklets contain interesting and useful data for those involved with insulated piping distribution systems. *Engineering Data for Underground Steam Distribution, Section 480-2* deals with such subjects as the layout of the route, general information for underground heating or power piping construction, methods of estimating steam loads, steam flow charts and tables. Other sections cover properties of steel pipe, properties of saturated steam, description of Ric-wiL insulated pipe units and other similar related topics. *Typical Engineering Drawings, Section 480-3* reproduces actual drawings used in a wide variety of insulated piping installations. These include industrial, educational, housing, hospital, public utilities, railroad and governmental projects.

UNIT HEATERS. Thermobloc, Bulletin No. 300. Thermobloc Div., Prat-Daniel Corp., East Port Chester, Conn. 8 pp. 8½ x 11 in.

For those interested in unit heaters, Bulletin No. 300 describes the new packaged, direct-fired Thermobloc which delivers 550,000 Btu's per hr. and operates at 82 to 86 per cent efficiency. The text briefly reviews the heater's operating features and discusses its various uses as a heater, dryer or air circulator. A full page cut-away drawing illustrates its construction and an interesting section compares the advantages of the new Thermobloc to steam and hot water type heaters. The closing page lists the unit's specifications.

CONVECTORS. Standardized Arco Multifin Convectors and American Enclosures. American Radiator & Standard Sanitary Corp., P. O. Box 1226, Pittsburgh, Pa. 16 pp. 8½ x 11 in.

Superseding other American-Standard literature on Arco Multifin Convectors and American Enclosures, this catalogue gives descriptions, roughing-in dimensions, ratings and specifications for stock models, special service lines and marine units. The 63 stock model convectors and enclosures covered are designed for ordinary hot water systems only. The special service line models are for hot *(Continued on page 252)*



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Adlake Windows need no painting, no maintenance other than routine washing.

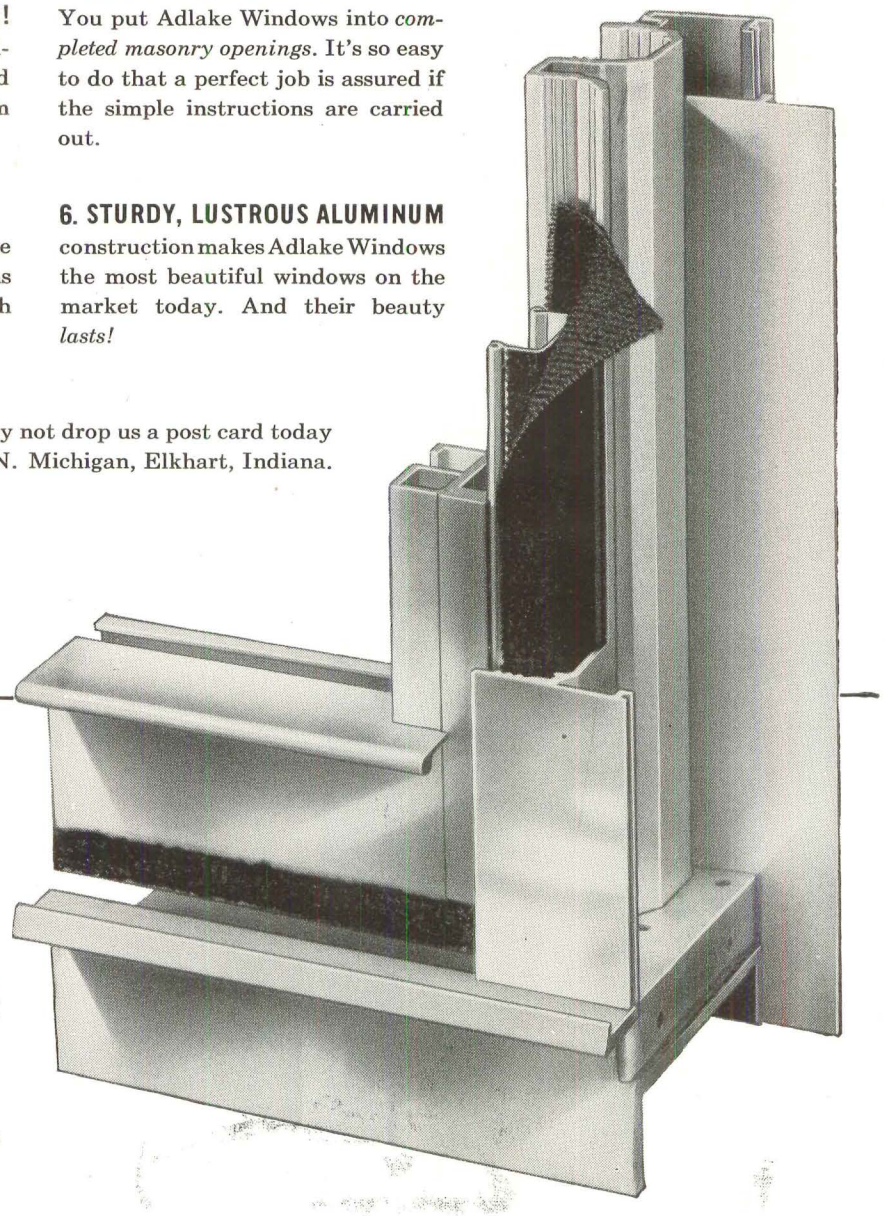
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4. NO WARP, ROT, RATTLE,
stick or swell, *ever*, with weather-defying Adlake Windows!

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You put Adlake Windows into *completed masonry openings*. It's so easy to do that a perfect job is assured if the simple instructions are carried out.

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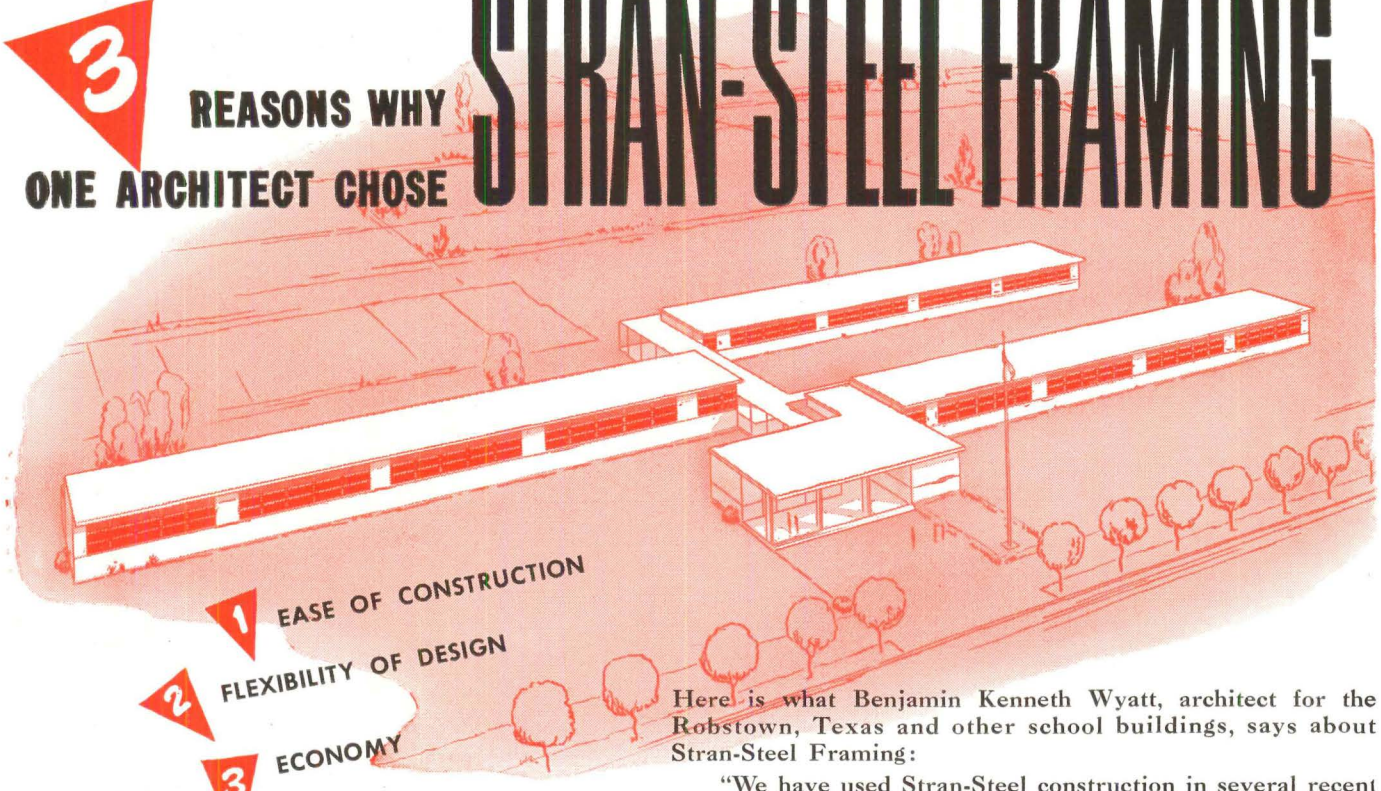
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1 EASE OF CONSTRUCTION

2 FLEXIBILITY OF DESIGN

3 ECONOMY

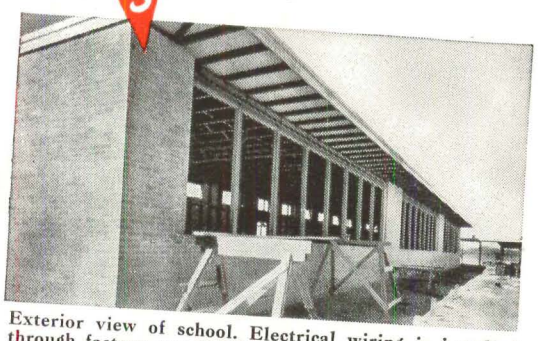
Here is what Benjamin Kenneth Wyatt, architect for the Robstown, Texas and other school buildings, says about Stran-Steel Framing:

"We have used Stran-Steel construction in several recent school buildings.

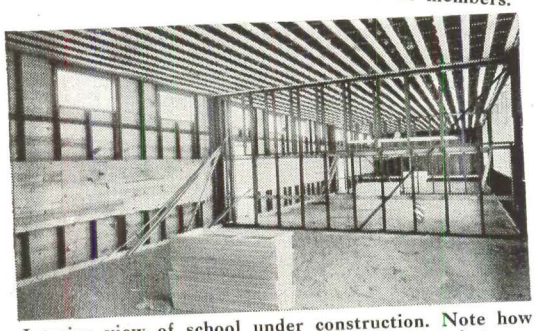
"Besides being most flexible for modern design, providing light cantilevered construction, thin window mullions used with collateral materials, economical suspended furring, Stran-Steel offers great rigidity with speed of erection for greater economy.

"Being able to nail to Stran-Steel framing gives the economy of wood framing for dry wall construction (Knox School) also eliminates furring for metal lath (Robstown Schools) in plaster construction. Fire-safety and long life is of paramount importance in school building construction, and incombustible Stran-Steel framework meets both of these requirements."

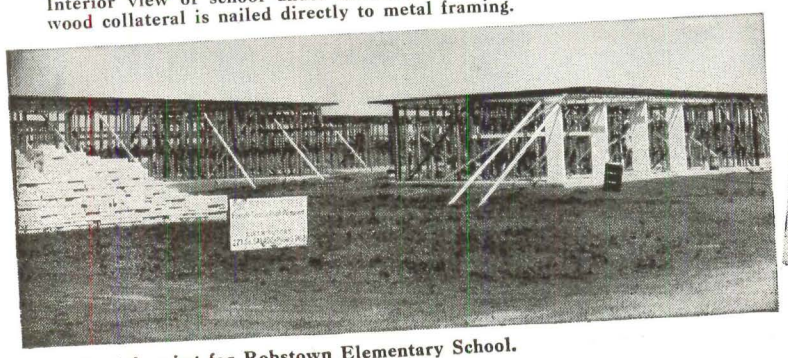
Stran-Steel framing makes it easy to design, easy to build BETTER BUILDINGS economically! If you are planning a housing project, a light industrial building or a private home, you can give your buildings a backbone of steel with Stran-Steel framing.



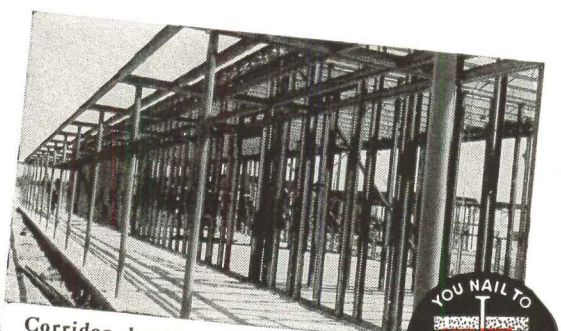
Exterior view of school. Electrical wiring is installed through factory-punched holes in frame members.



Interior view of school under construction. Note how wood collateral is nailed directly to metal framing.



Stran-Steel framing for Robstown Elementary School.



Corridor detail of school showing Stran-Steel framing.

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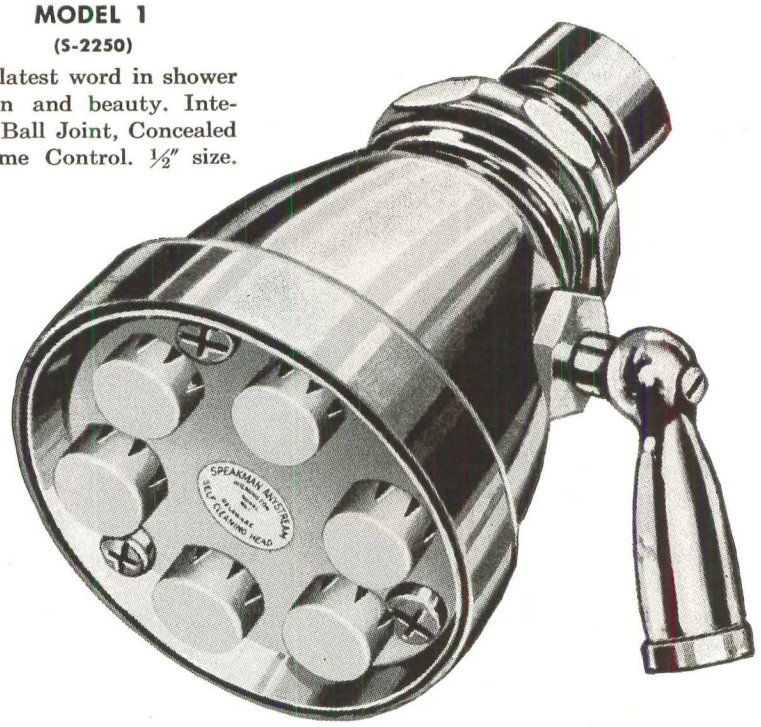
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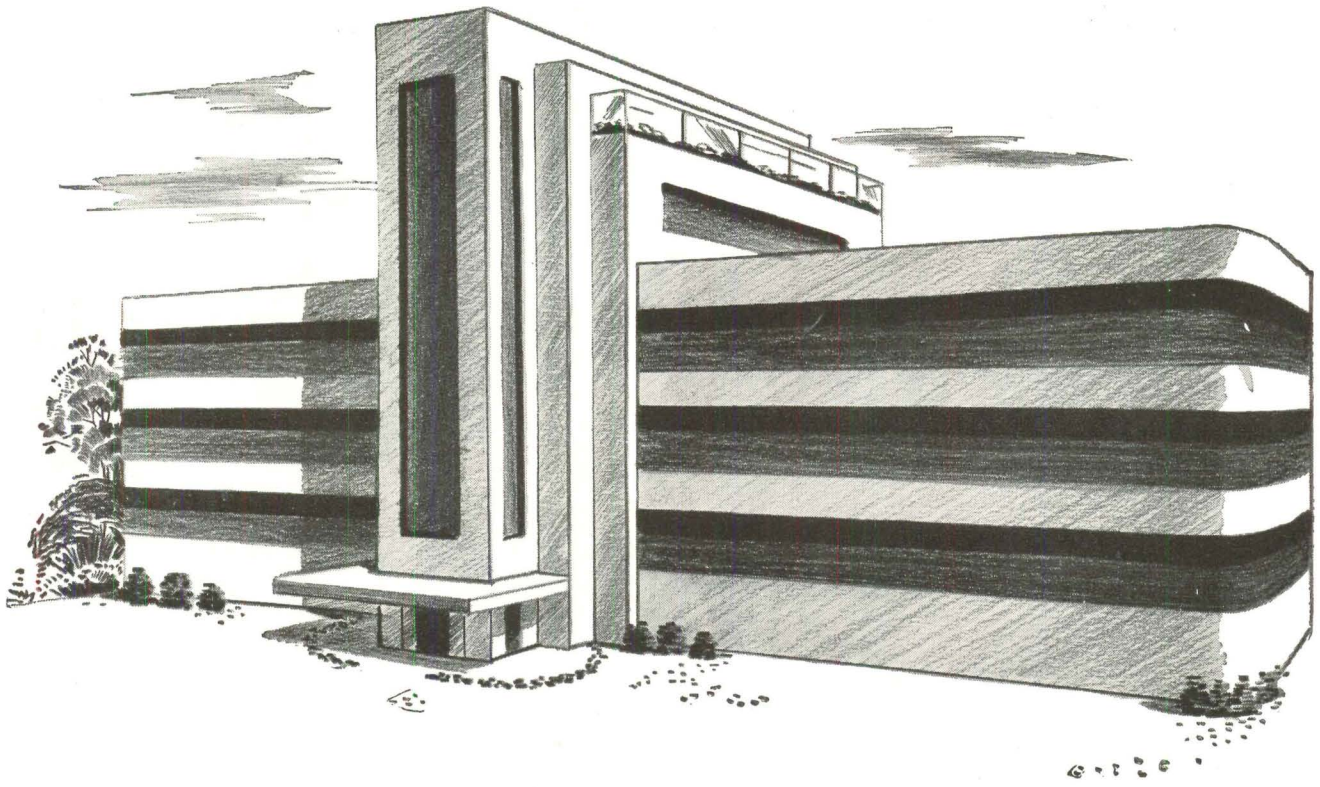
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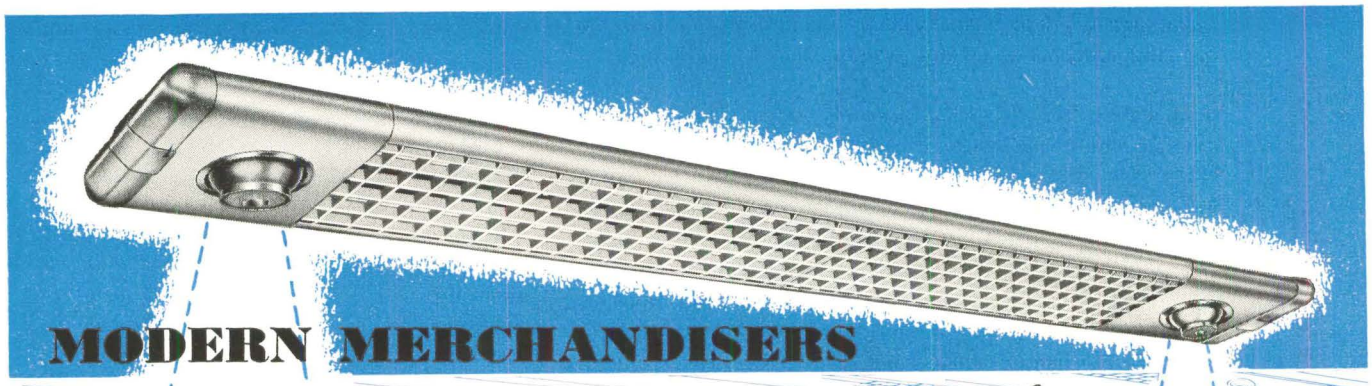
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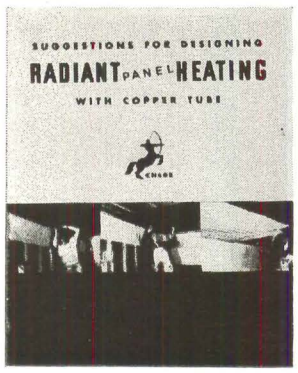
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TECHNICAL LITERATURE



water and two-pipe steam systems and the Marine units are for shipboard hot water and two-pipe steam installations.

RADIANT HEATING. Suggestions For Designing Radiant Panel Heating With Copper Tube. Chase Brass & Copper Co., Waterbury, Conn. 48 pp. 8½ x 10⅝ in.

With *Suggestions For Designing Radiant Panel Heating With Copper Tube*, Chase has made another noteworthy contribution to the general fund of knowledge on radiant heating. The semi-technical work deals exclusively, as the title indicates, with copper tubing installations and contains a digest of practical information and design data. After briefly tracing the history, comforts and other advantages of this type of heating, the general considerations governing the design of a radiant heating system are outlined: panel size and construction, piping system, control valves, pumps and controls. Subsequent pages, complete with tables and drawings, suggest a simplified step-by-step method of design. Installation practices are then illustrated and discussed. In this section the soldering of copper tube joints, installation of ceiling, wall and floor panels, the piping system, operation and maintenance of a radiant heating system are covered. An informative question and answer section should be of interest to both the layman and professional. The closing pages include: suggested design procedure for snow melting installations, tables of climatic conditions in the U. S. and Canada, heat loss factors, Btu requirements, equivalent Btu heat loss.

RADIANT HEATING. Bibliography On Panel Heating by Clark M. Humphreys and Doris M. Dietz. American Society of Heating and Ventilating Engineers Research Laboratory, 7218 Euclid Ave., Cleveland, Ohio. 38 pp. 8½ x 11 in. Price $.50.

Prepared and presented by the A.S.H.V.E. Research Laboratory this nearly complete bibliography on radiant heating includes references through December 31, 1947. Articles having appeared in both American and foreign technical and non-technical papers are listed. Where applicable, a note on the main points of each article is given.

LIGHTING. Lighting Fixture Digest. Solar Light Mfg. Co., 1357 S. Jefferson St., Chicago, Ill. 8 pp. 8½ x 11 in.

This well-planned, concise catalogue illustrates, describes, dimensions and prices a number of louvered and diffusing fluorescent luminaries and emphasis lights. In addition it catalogues both Alzak aluminum and steel troffers and a variety of accessories.

LIGHTING. Smithcraft Architectural Troffers. Smithcraft Lighting Div., Chelsea 50, Mass. 16 pp. 8½ x 11 in.

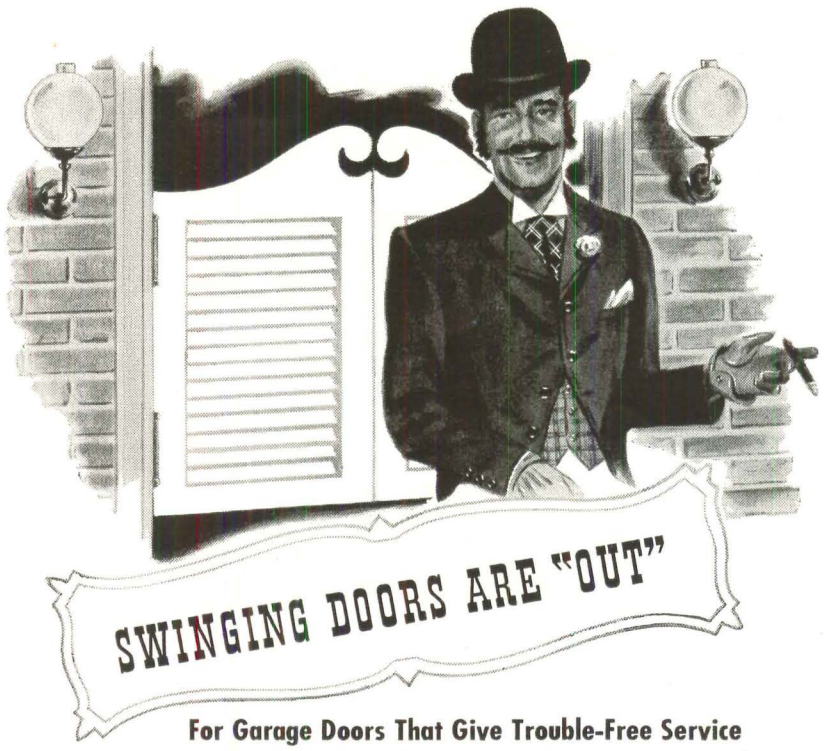
Detailing the many features of Smithcraft shallow and deep troffers, this informative booklet explains the function of the Smithcraft aligner hanger which permits leveling and adjusting of the troffer after installation has been completed. Methods of installing the troffer in various ceiling constructions are shown, together with such developments as the Plaster Frame, Slip-on trim flange and. Duo-cam hangers.

LIBRARY FURNITURE. Bulletin No. L-10. John E. Sjostrom Co., 1717 N. 10th St., Philadelphia, Pa. 8 pp. 8½ x 11 in.

Bulletin No. L-10 pictures and describes the Sjostrom line of modern unit type library furniture for schools, colleges, community halls and industrial use. Such pieces as reading tables, charging desks, shelving, chairs, magazine and newspaper racks, files, etc., are clearly presented with photographs, diagrams, dimensional tables and text. The section dealing with the charging desk covers each of the six component units separately, as well as their combination into a typical desk.

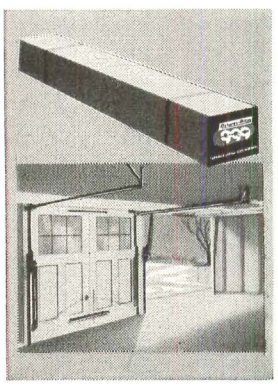
FURNITURE. JG Furniture Co., Inc., 102 Kane St., Brooklyn 2, N. Y. 28 pp. 8⅜ x 10 9/16 in.

A wide variety of modern furniture designed especially for commercial interiors is presented in this attractive brochure. The opening page describes and details the construction features of JG chairs. Following pages illustrate and dimension many stock items in the JG line: modern chairs, settees, tables, stools, etc.



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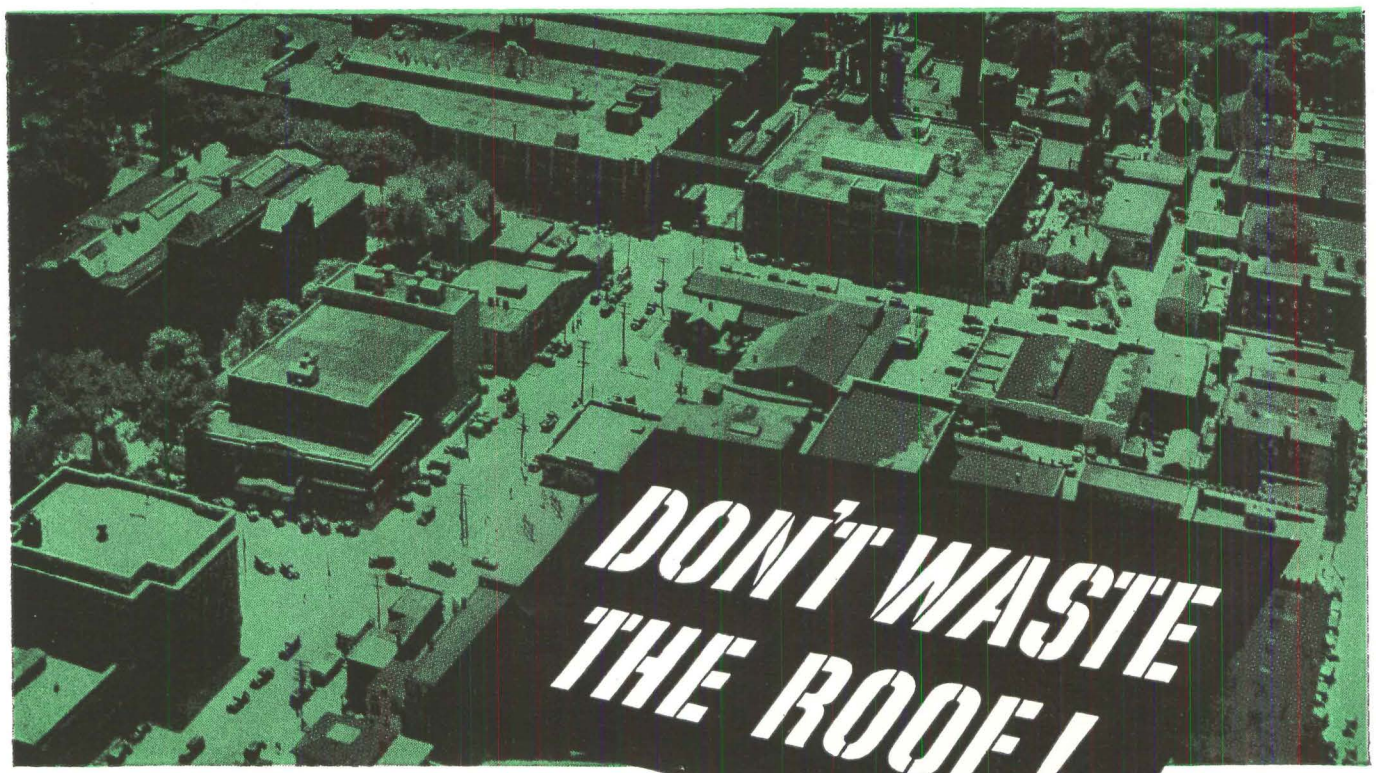


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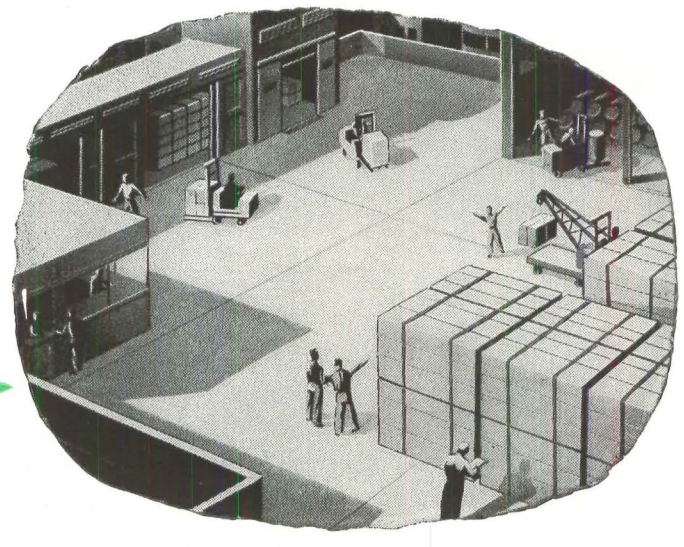
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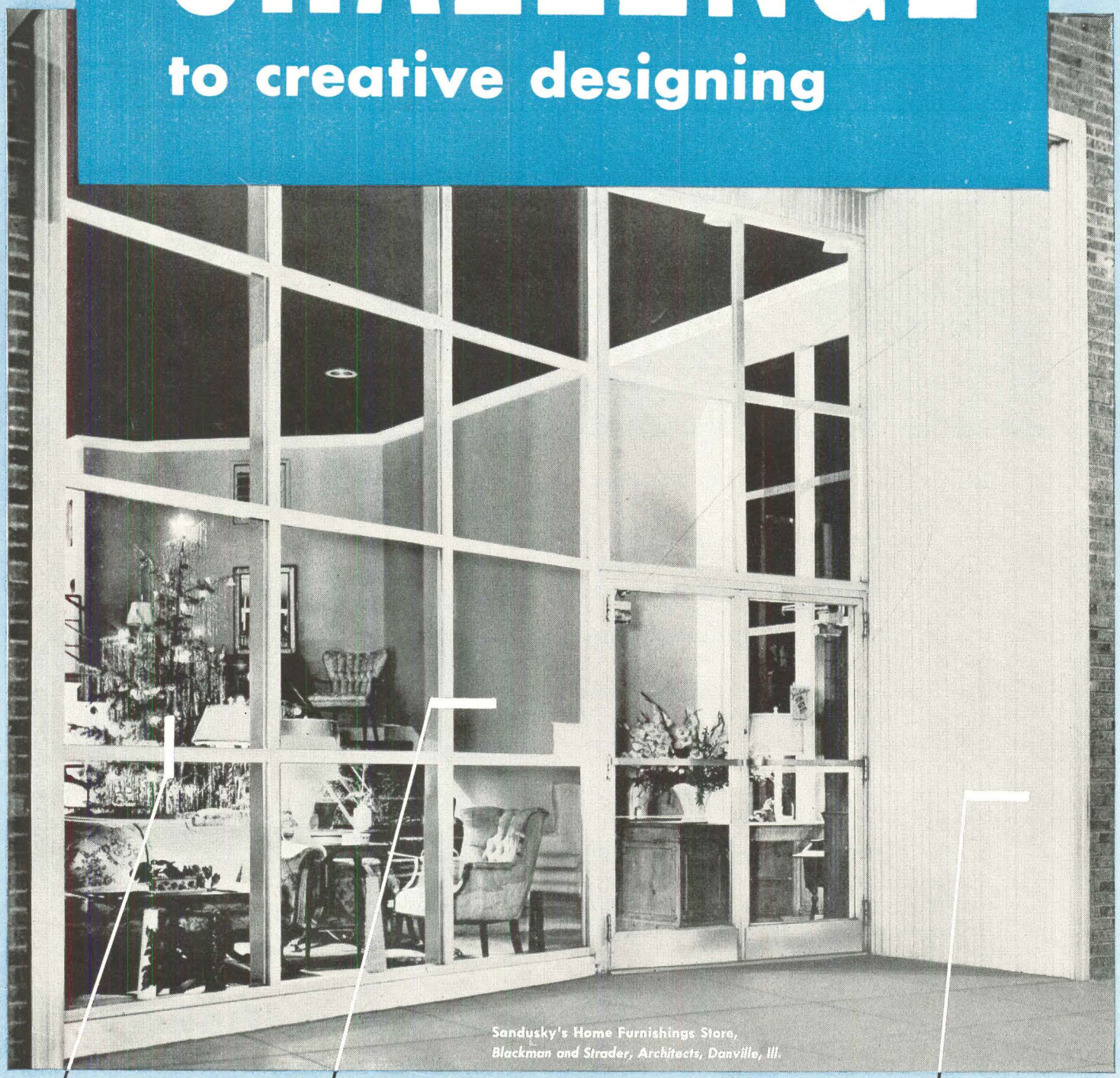
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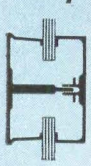
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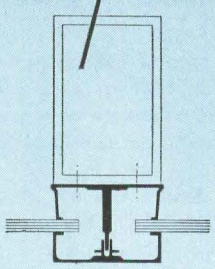
A modern store front is a CHALLENGE to creative designing



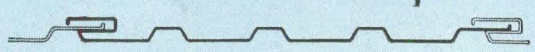
Sandusky's Home Furnishings Store,
Blackman and Strader, Architects, Danville, Ill.



¼ size detail of stock division bar, used horizontally in above store front.



¼ size detail of stock division bar, used vertically with aluminum tubular reinforcement.



Zourite, the modern aluminum facing material. Available in green, brown, or black porcelain enamel, and in alumilite.

You can meet this challenge with Kawneer Metals— *they offer custom-styling in stock shapes*

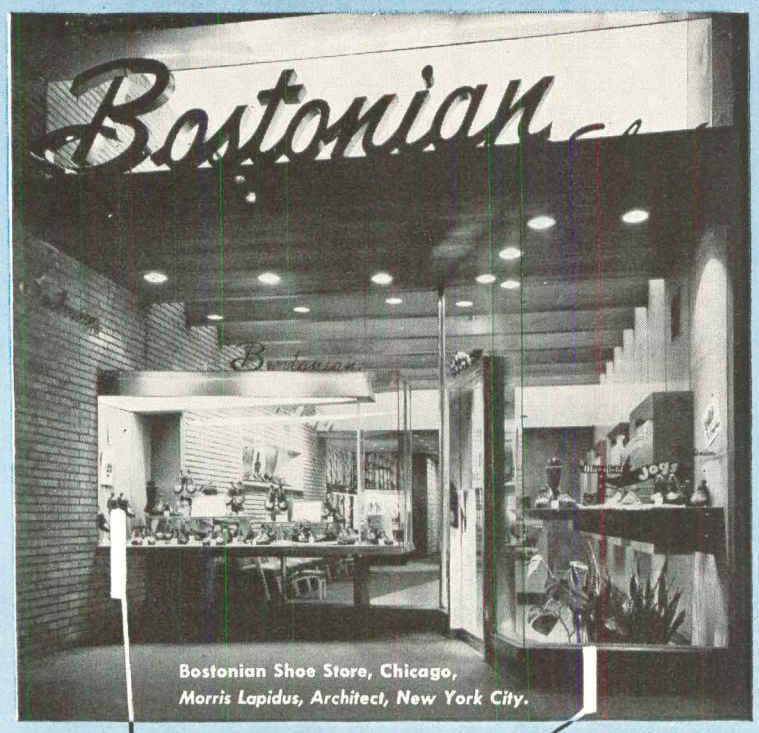
Kawneer Stock Store Front Metals possess the handsome appearance and striking individuality of custom-made shapes—yet they bring important cost-reductions to you and your clients. Kawneer Stock Metals cost far less than specially-made assemblies—they reduce the cost of drafting and detailing—and they eliminate costly delays.

Kawneer metals are styled and engineered to the highest standards of modern architecture. They also bring you new flexibility in designing, because many shapes are interchangeable and many serve multiple uses.

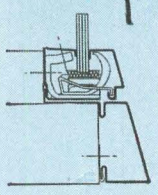
Pictured here are only a few of the Kawneer Stock Metals. Write for construction details. 201 North Front Street, Niles, Mich., 2501 8th St., Berkeley, Cal., or 817 East Third St., Lexington, Ky.

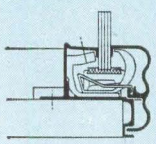
THE **Kawneer** COMPANY

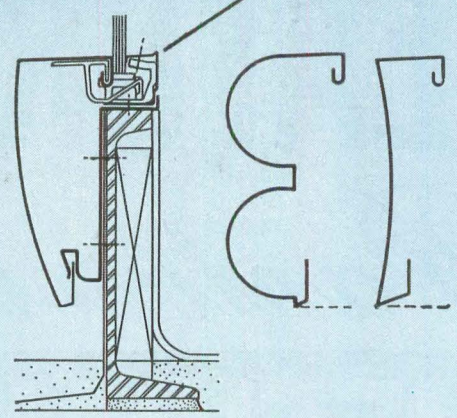
Store Front Metals • Modern Entrances
Facing Materials • Aluminum Louvered Ceilings
Aluminum Roll-Type Awnings



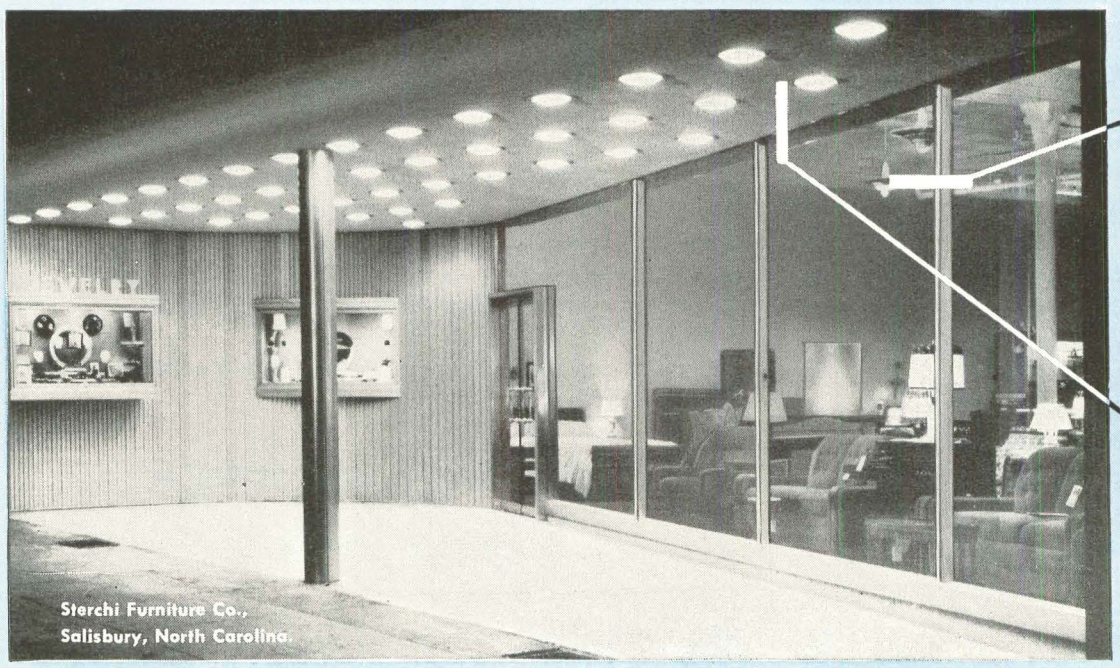
Bostonian Shoe Store, Chicago,
Morris Lapidus, Architect, New York City.

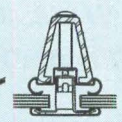

¼ size detail of stock glazing sash above.

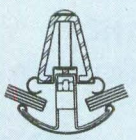

One of the many other stock sashes.

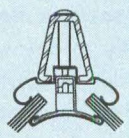

Stock bulkhead assembly used in above store front.

Two other stock bulkhead faces which are also available.

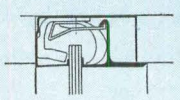

Sterchi Furniture Co.,
Salisbury, North Carolina.


¼ size detail of stock division bar used at left.


Stock corner bar—angles from 90° to 120°, 120° to 165°


Stock reverse corner bar.

Stiffeners shown here are Medium. Also available—Light, Heavy, Heavy X stiffeners.


Stock flush-glazing sash eliminates projecting metal.

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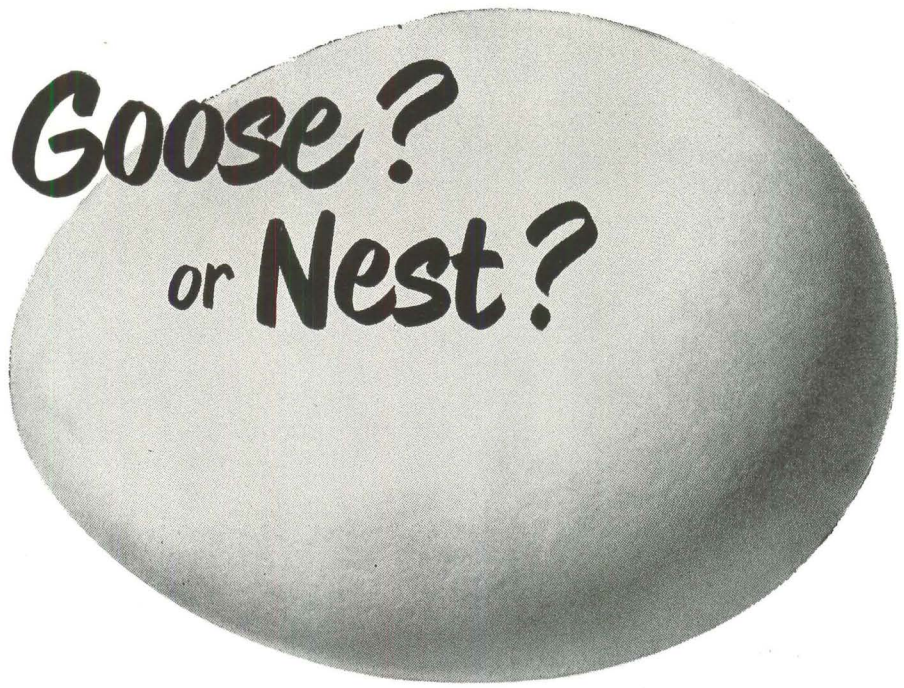
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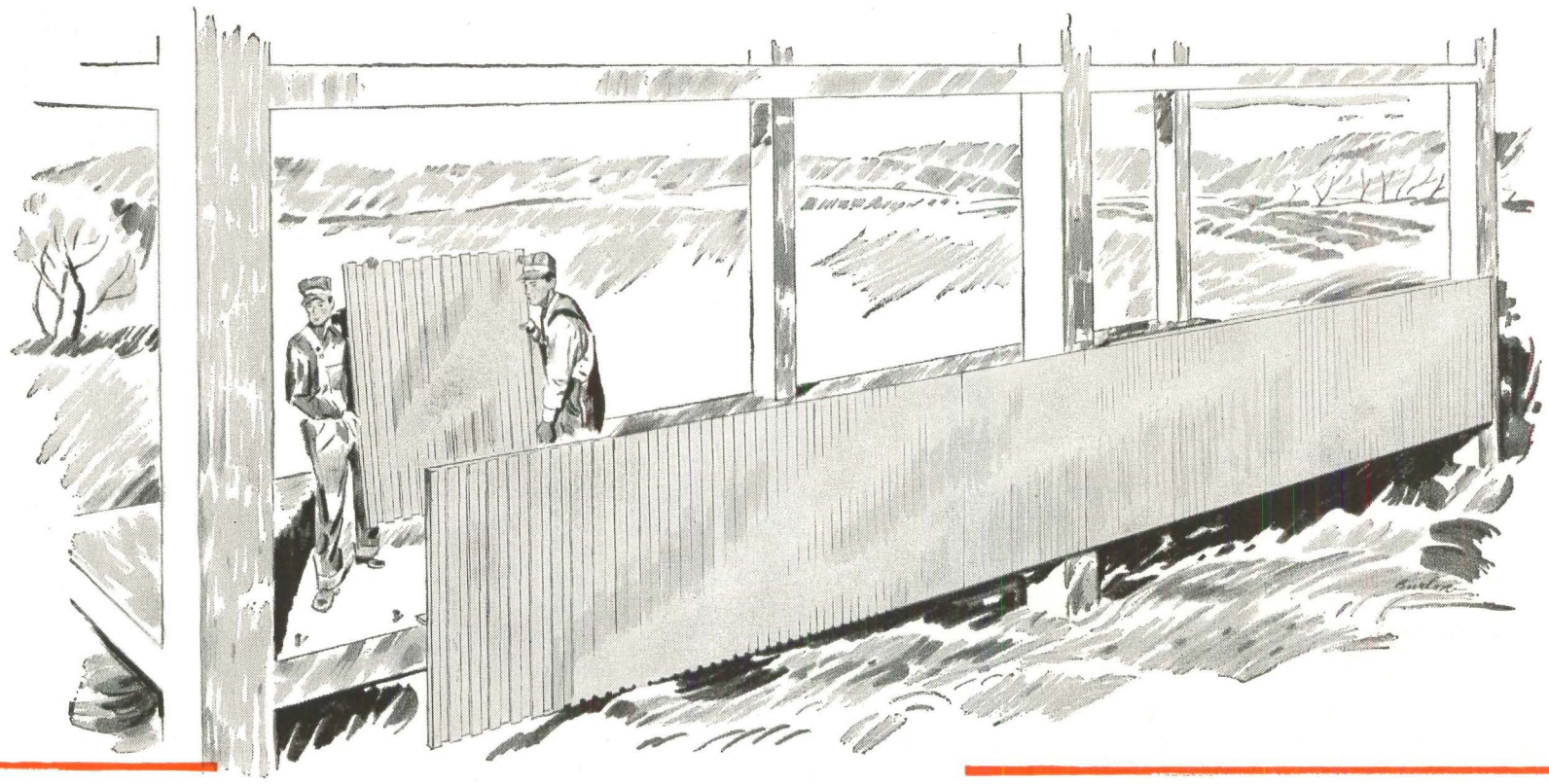
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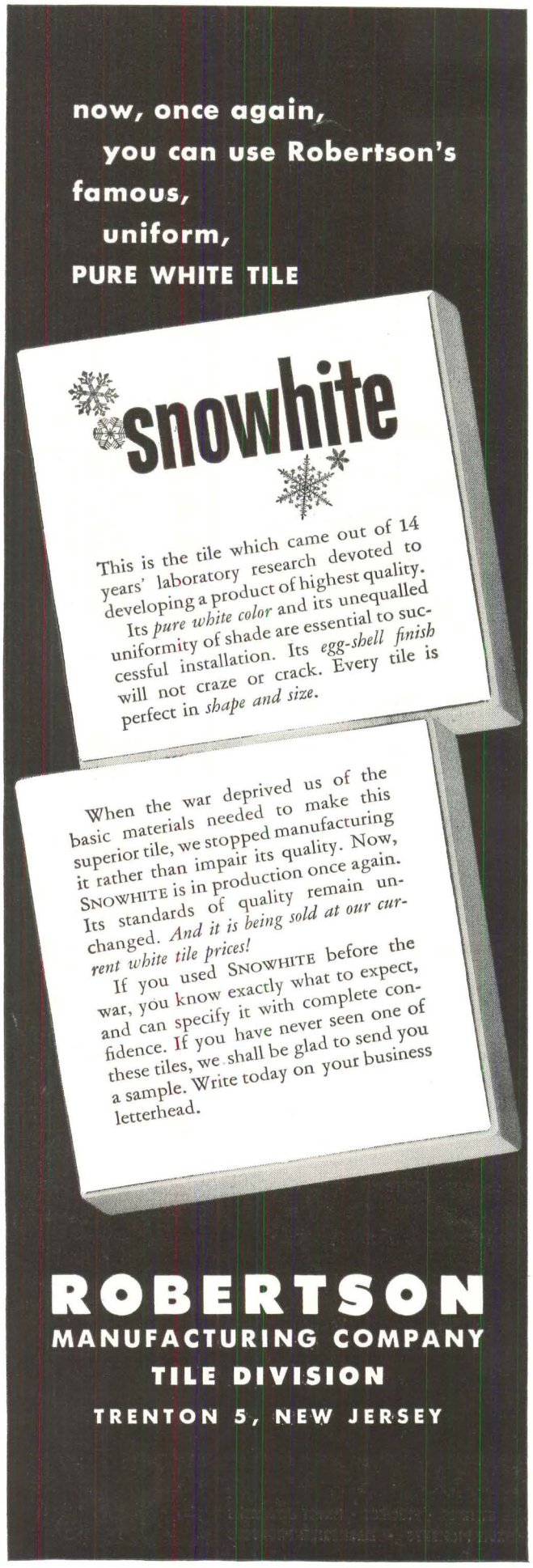
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Adam, Fank, Electic Company 54
Adams & Westlake Company, The 247
Aluminum Company of America *(Alcoa)* 63, 257
Aluminum Window Corporation, The *(Subsidiary of General Bronze Corporation)* 229
Aluminum Window Manufacturers Association 226, 227
American Radiator & Standard Sanitary Corporation 184, 185
American Structural Products Company 176
American Tile & Rubber Co. 210
American Trucking Associations 188
Andersen Corporation 164
Anthracite Institute 22
Asphalt Roofing Industry Bureau 238

Bakelite Corporation 45
Baker Ice Machine Co., Inc. 198
Bigelow-Sanford Carpet Company, Inc. 64
Bird and Son, Inc. 186
Borg-Warner Corporation *(Ingersoll Steel Division)* 187
Borg-Warner Corporation *(Norge Division)* 239
Borg-Warner Corporation *(Norge Heat Division)* 76, 77
Bruce, E. L., Company 32, 33
B & T Metals Co., The 74
Bundy Tubing Company 27

Cabot, Samuel, Inc. 28
Cambridge Tile Manufacturing Company, The .....Cover II
Canvas Awning Institute, Inc., The 66
Carey, Philip, Company, The 6, 7
Carr, Adams & Collier Company 196
Case, W. A., & Son Mfg. Co. 152, 153
Casement Hardware Company, The 24
Ceco Steel Products Corporation 209
Celotex Corporation, The 2
Central Surety & Ins. Corp. 224
Chase Brass & Copper Co., Inc. 69
Chelsea Fan & Blower Co., Inc. 66
Chicago Hardware Foundry Co., The 34
Church, C. F., Mfg. Co. 168
Coleman Company, Inc., The 29
Colonial Electric Products, Inc. 50
Columbia Mills, Inc., The 222
Columbus Coated Fabrics Corp. 24
C-O-Two Fire Equipment Company 20
Crane Co. 171
Cribben & Sexton Co. 26
Curtis Companies 175
Curtis Refrigerating Division *(Curtis Mfg. Co.)* 163

Detroit Steel Products Company 159
Devoe & Raynolds Company, Inc. 70
Douglas Fir Plywood Association 156
Dow Chemical Company, The 230
Dunbar Furniture Manufacturing Company 42
Dunham, C. A., Company 65
Dwyer Products Corporation 174

Elevator Safety Corporation 173
Eljer Company .....Cover III, 260
Emerson Electric Mfg. Co., The 158

Facing Tile Institute 68
Fasco Industries, Inc. 38
Fedders-Quigan Corporation 55
Féderal Enterprises, Inc. 167
Fiat Metal Manufacturing Company 150
Fleur-O-Lier Manufacturers 71
Flintkote Company, The 80
Flynn, Michael, Manufacturing Company 48
Formica Company, The 203
Fremont Rubber Co. 4
Frigidaire Division *(General Motors Corporation)* 213

General Controls 234
General Electric Company 43, 60, 61, 160, 161, 233, 243, 244, 245
General Motors Corporation *(Frigidaire Division)* 213
Gilman Brothers Co., The 5
Grand Rapids Hardware Company 50
Grant Pulley & Hardware Company 234
Graybar Electric Co. 190
Great Lakes Steel Corp. *(Stran-Steel Division)* 248
Grinnell Company, Inc. 1

Hauserman, E. F. Company, The 195
Hoffman Specialty Company, Inc. 235
Homasote Company 242
Horn, A. C. Company, Inc. 19
Hotpoint, Inc. 217
Hunter Douglas Corporation 28

Independent Lock Co. *(Lockwood Hardware Mfg. Co. Division)* 182
Ingersoll Steel Division *(Borg-Warner Corporation)* 187
Inland Steel Products Company 201
Insulite Company, The 17
International Oil Burner Co. 202

Johns-Manville 199
Jones & Laughlin Steel Corporation 191

Kaufmann & Fabry Co. 70
Kawneer Co., The 254, 255
Kelvinator 8

BUYING INDEX

Kennedy, David E., Inc. 218, 219
Kewanee Boiler Corporation 172
Kimberly-Clark Corporation 169
Kohler Company 178
Koppers Company 31
Kwikset Locks, Inc. *(Petko Industries, Inc.)* 56, 57

Leader Electric Manufacturing Corporation 251
Libbey-Owens-Ford Glass Company 157
Life 202
Lightolier Company, Inc., The 25
Lockwood Hardware Mfg. Co. *(Division Independent Lock Co.)* 182
Lorentzen Hardware Mfg. Corp. 241
Louisville Cement Company, Inc. 181
Lustron Corporation 72, 73

Marble Institute of America, Inc., The 36
Masonite Corporation 193
McKinney Manufacturing Company 38
Medusa Portland Cement Company 154
Metal Tile Products, Inc. 246
Meyer Furnace Company, The 34
Miller Company, The 236
Miller, Herman, Furniture Company 58
Mills Co., The 37
Minneapolis-Honeywell Regulator Company 51
Modine Manufacturing Company 44
Mueller, L. J., Furnace Company 47

National Electrical Manufacturers Association 39
National Homes Corp. 232
National Lead Company 79
Nesbitt, John J., Inc. 23
New Castle Products 202
New York Wire Cloth Co. 46
Norge Division *(Borg-Warner Corporation)* 239
Norge Heat Division *(Borg-Warner Corporation)* 76, 77

O'Brien Corporation, The 216
Otis Elevator Company 75
Overhead Door Corporation ..... Cover IV
Owens-Corning Fiberglas Corporation 21, 208

Pantosote Co., The 256
Permanente Metals Corporation 192
Petko Industries, Inc. *(Kwikset Locks, Inc.)* 56, 57
Pittsburgh Corning Corporation 49
Pittsburgh Plate Glass Company 223
Pittsburgh Reflector Company 221
Pittsburgh Steel Products Company 40
Portland Cement Association 205
Pratt & Lambert, Inc. 151
Pryne & Company, Inc. 198

Raymond Concrete Pile Company 179
Revere Copper & Brass, Inc. 197
Reynolds Metal Company 67
Richards-Wilcox Manufacturing Company 252
Ric-wil Co., The 231
Robertson Mfg. Co. 258
Roddis Plywood Corp. 225
Rohm & Haas Company 183
Rolscreen Company 170
Rowe Manufacturing Company 149
Ruberoid Company, The 253
Rust-Oleum Corporation 18

Schlage Lock Company 41
Scott, O. M. and Sons Company 54
Servel, Inc. 165
Sharon Steel Corporation 214, 215
Signal Electric Mfg. Co. 198
Sisalkraft Co., The 42
Smith, A. O., Corporation 228
Soss Manufacturing Company 30
Speakman Company 249
Staedtler, J. S., Inc. 234
Standard Dry Wall Co. ..... opp. 48
Stemco Corporation 194
Stran-Steel Division *(Great Lakes Steel Corp.)* 248
Structural Clay Products Institute 211
Surface Combuston Corporation 200
Sylvania Electric Products, Inc. 162

Timken Silent Automatic Division *(The Timken-Detroit Axle Co.)* 237
Trane Company, The 155
Truscon Steel Company 78

United States Gypsum Co. 189
United States Plywood Corporation ..... bet. 48 & 49, 220
United States Savings Bonds 256
United States Steel Corporation 35
Universal Rundle Corporation 26
Uvalde Rock Asphalt Company 212

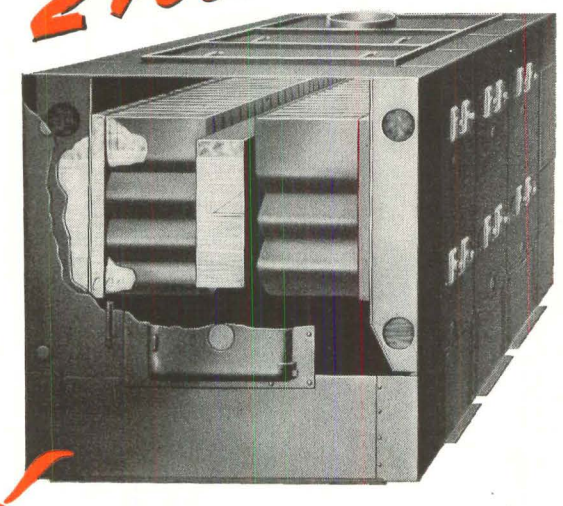
Vikon Tile Co. 240

Walworth Company 250
Waterfilm Boilers, Inc. 259
Welbilt Stove Company, Inc. 46
Weyerhaeuser Sales Company 52, 53
Wheeling Corrugating Company 59
Wood Conversion Company 204
Woodwork Corp. of America 180
Wright Manufacturing Co. 62

Yale & Towne Manufacturing Company, The 177
York Corporation ..... opp. 49
Young Radiator Company 30

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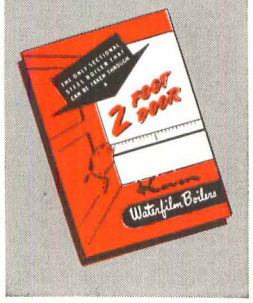
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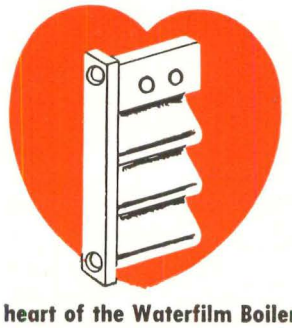
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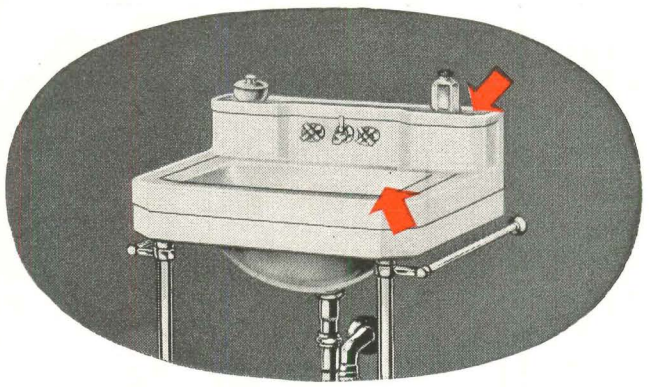
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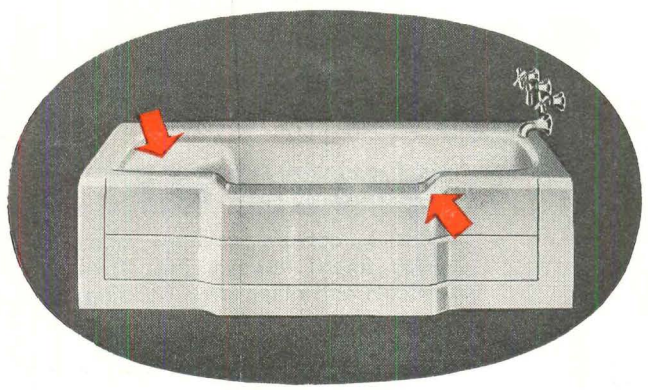
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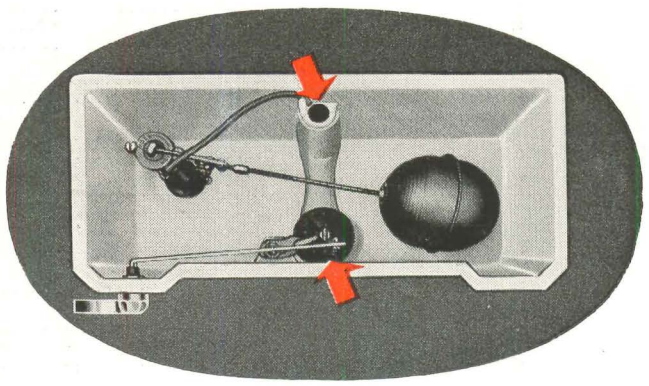


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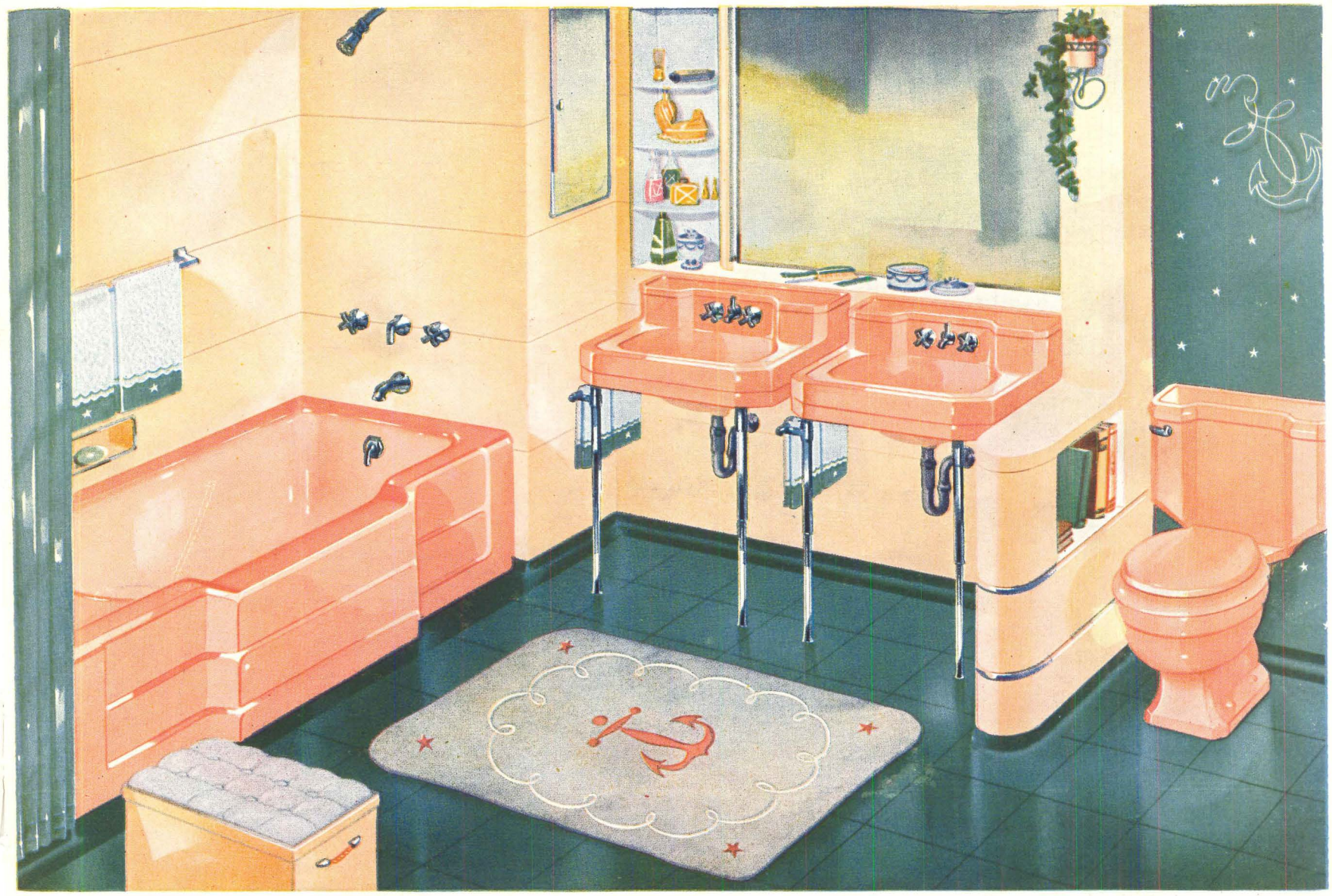
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